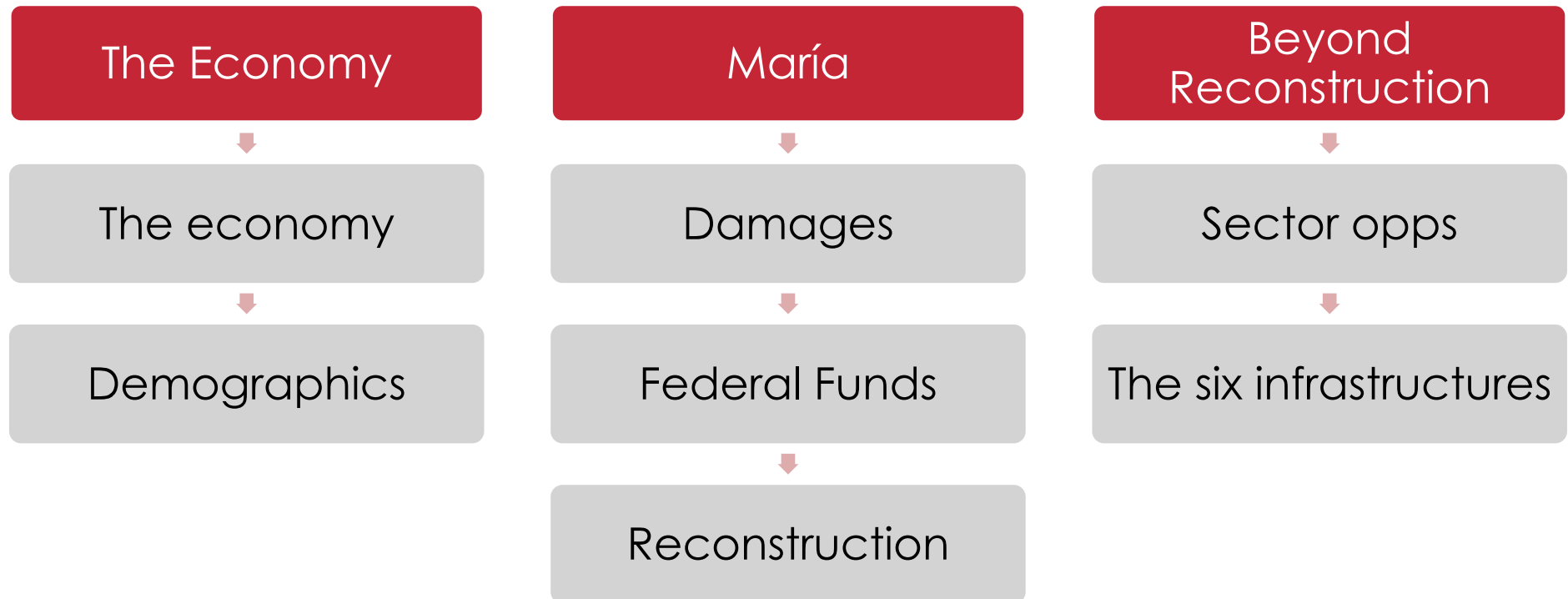


Puerto Rico's Prospects: Beyond Reconstruction



Topics



TOPICS

The Economy

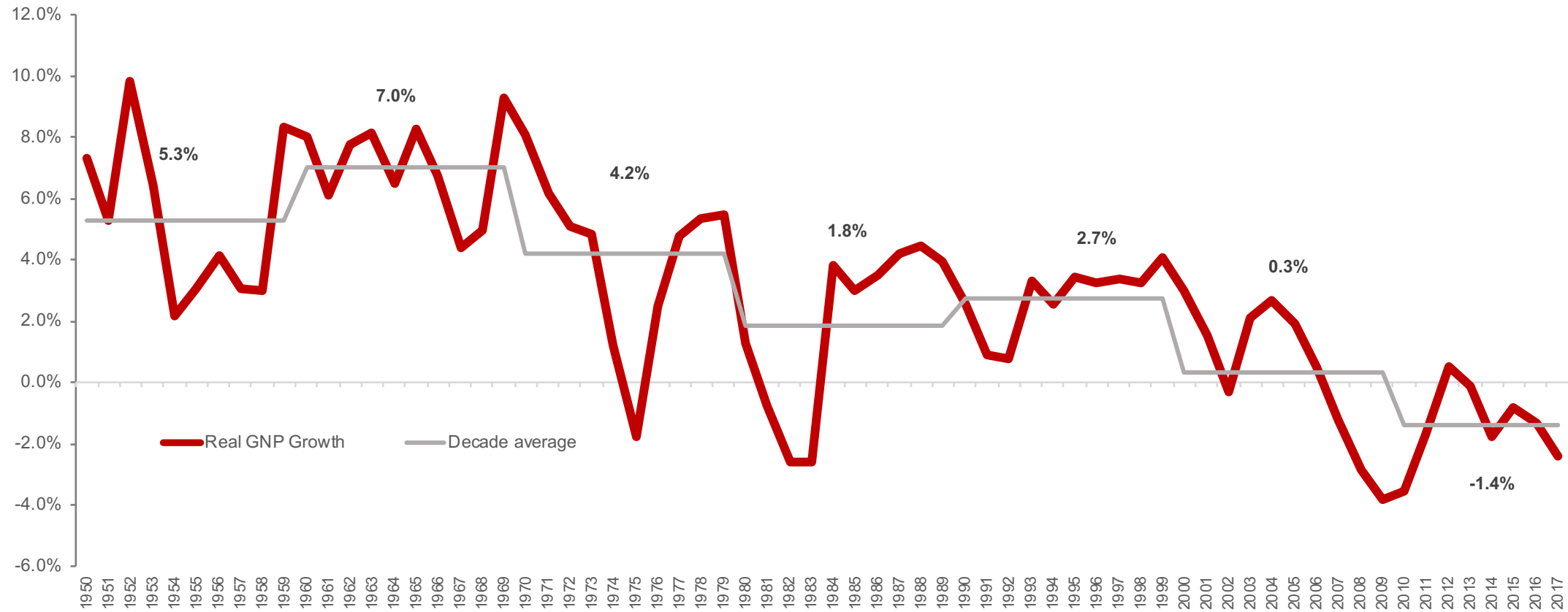
María

Beyond Reconstruction

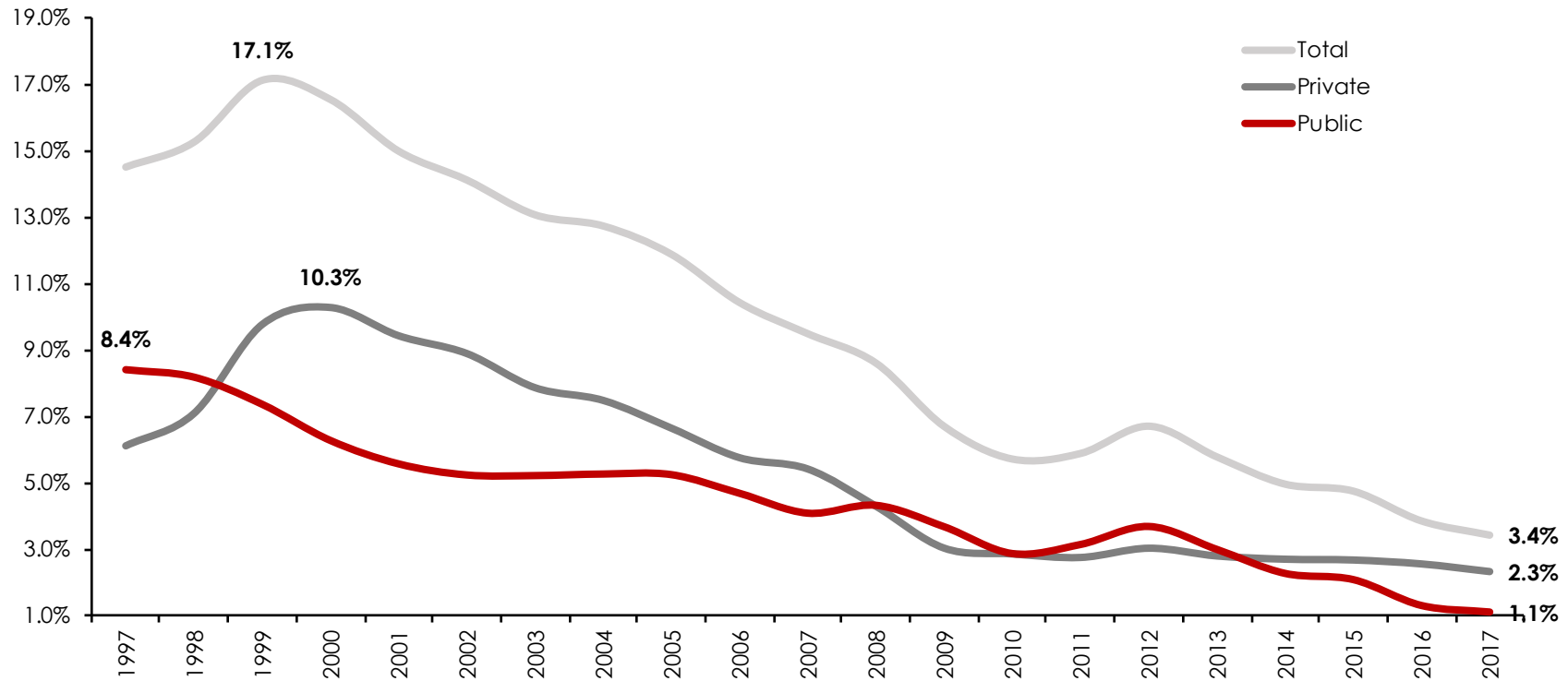


Long Term Trends

Puerto Rico Real GNP



Investment in Construction (I/GNP)



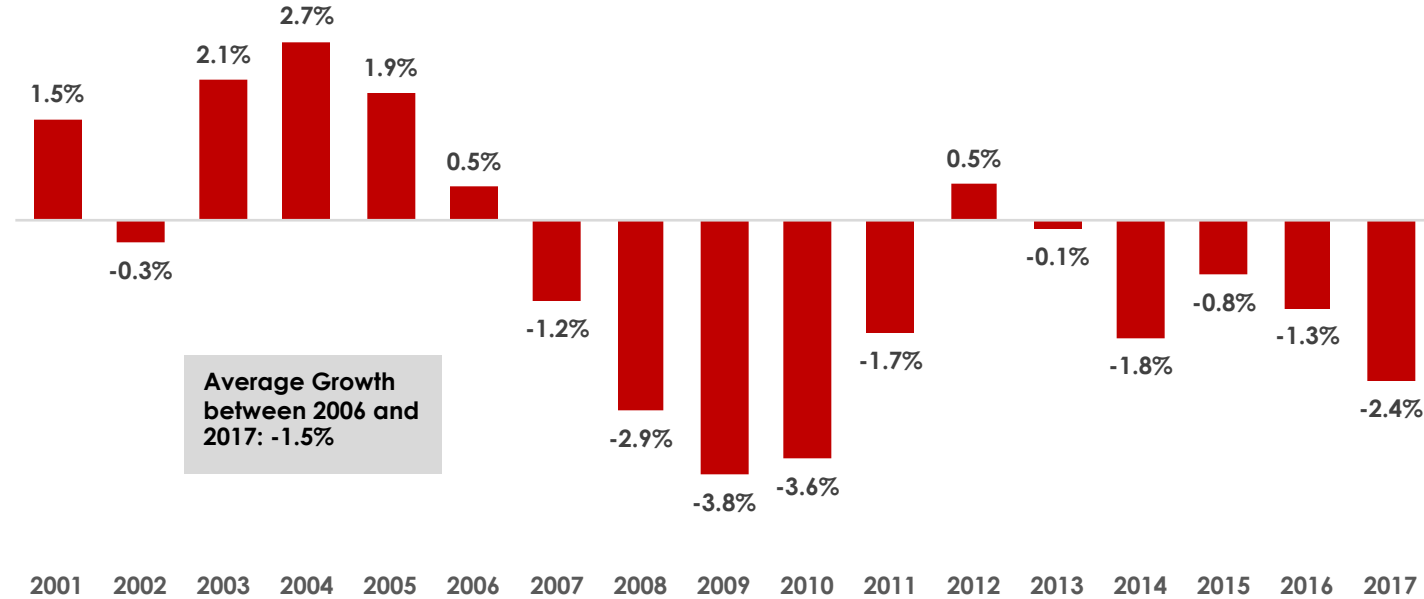
Investment in construction fell from nearly \$7.0 billion to around \$2.4 billion in 2017.

ECONOMIC CONTEXT

- María impacted an economy that is 17% smaller than in fiscal year 2006. This made the Island extremely fragile and reduced the Government's capacity to react quickly.

Real GNP Growth in Puerto Rico

Fiscal Years -- 2001-2017

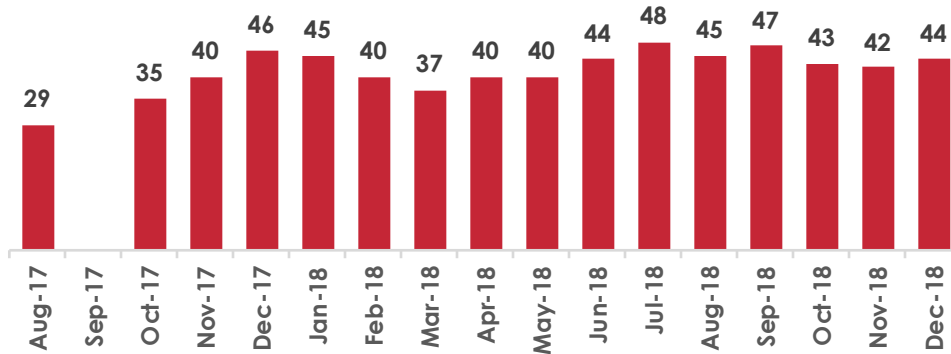


Source: P.R. Planning Board (2018). *Statistical Appendix* (Various Years)

Economic Indicators: After María

Construction Employment ('000s)

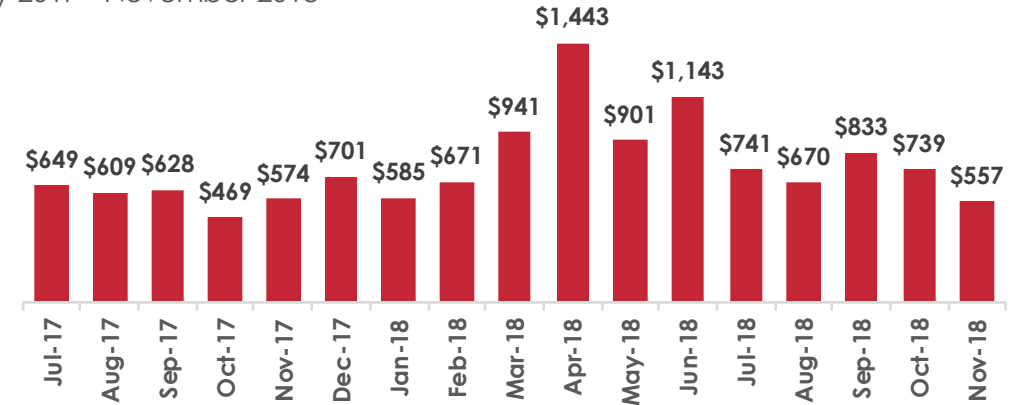
August 2017 - December 2018



Source: PR Department of Labor & Human Resources (2019). *Empleo y Desempleo*. No survey was performed on september 2017 due to the hurricane.

Fiscal Revenues (\$ millions)

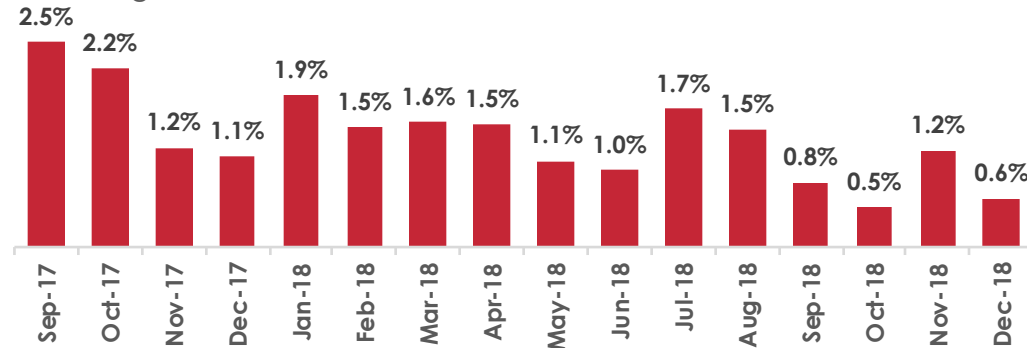
July 2017 - November 2018



Source: PR Treasury Department (2018). *Estadísticas y Recaudos*.

P.R. Inflation Rate

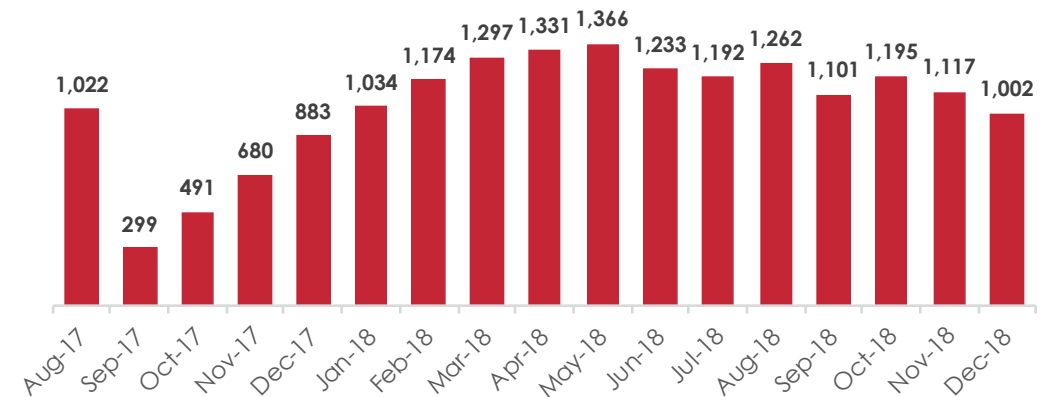
July 2017 - August 2018



Source: PR Department of Labor & Human Resources (2018). *Índice de precios al consumidor*.

Cement Sales (94lbs bags - thousand)

August 2017 - December 2018

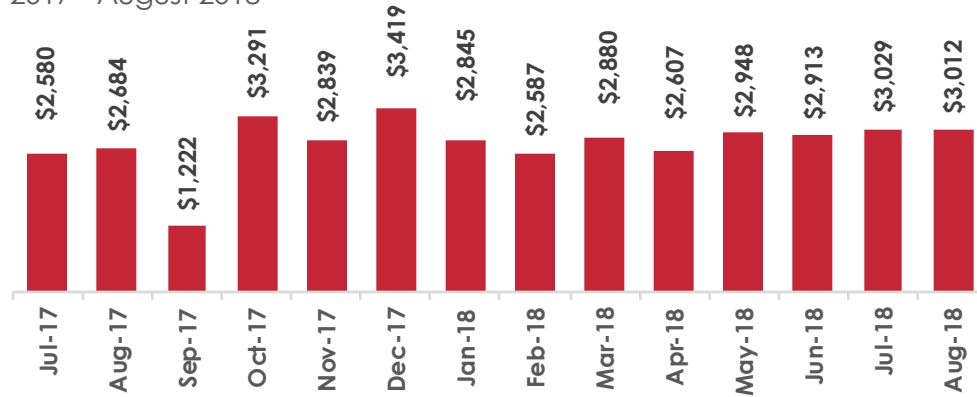


Source: Banco Gubernamental de Fomento (2018). *Producción y ventas de cemento*.

Economic Indicators: After María

P.R. Retail Sales (\$ Millions)

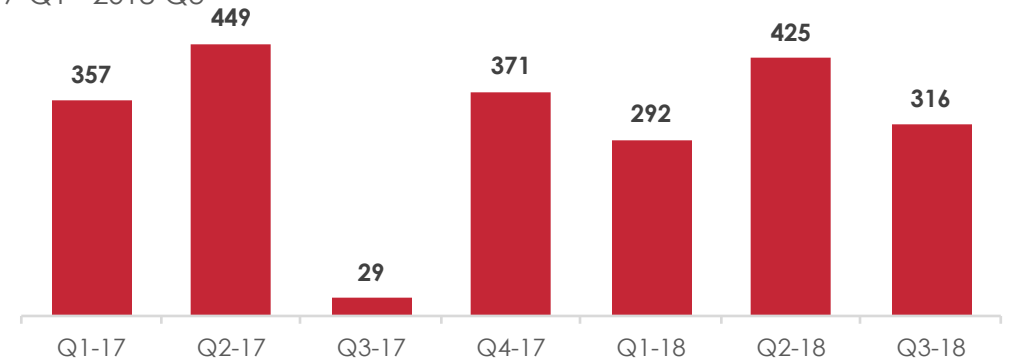
July 2017 - August 2018



Source: P.R. Commerce & Export Company (2018). *Informe de Ventas*.

New Housing Units Sales

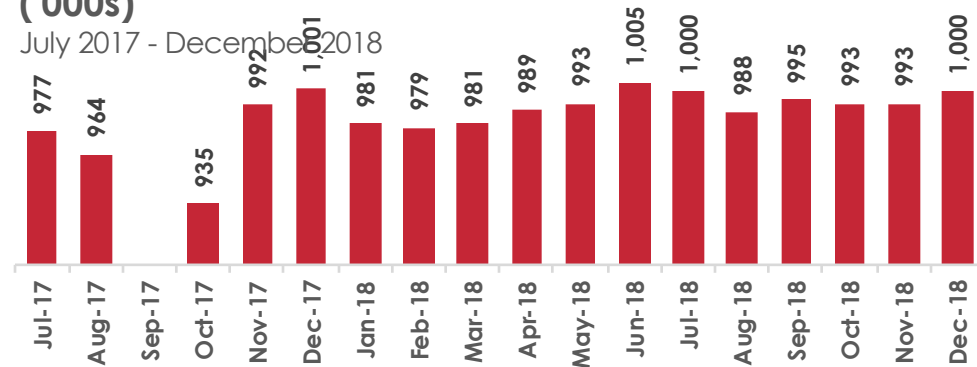
2017-Q1 - 2018-Q3



Source: Estudios Técnicos Inc (2018). *Construction and Sales Activity Report*.

Total Household Survey Employment ('000s)

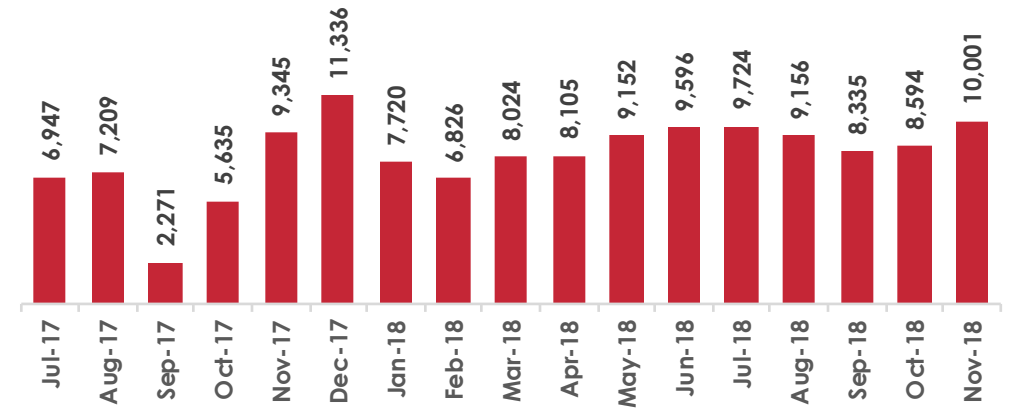
July 2017 - December 2018



Source: PR Department of Labor & Human Resources (2018). *Empleo y Desempleo*.
No survey was performed on september 2017 due to the hurricane.

New Auto Sales

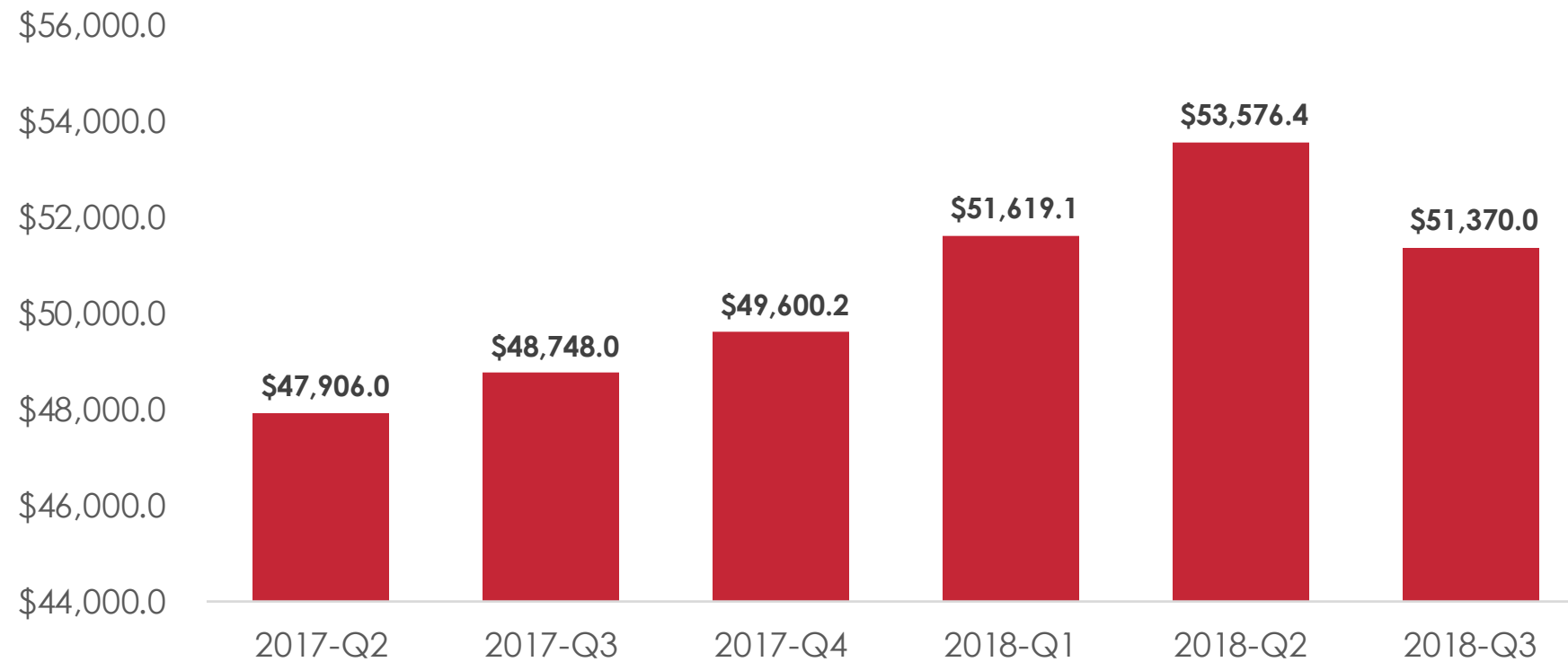
July 2017 - November 2018



Source: PR GUIA Group (2018). *Auto Industry Sales Report*.

Total Deposits in Commercial Banks

By quarters

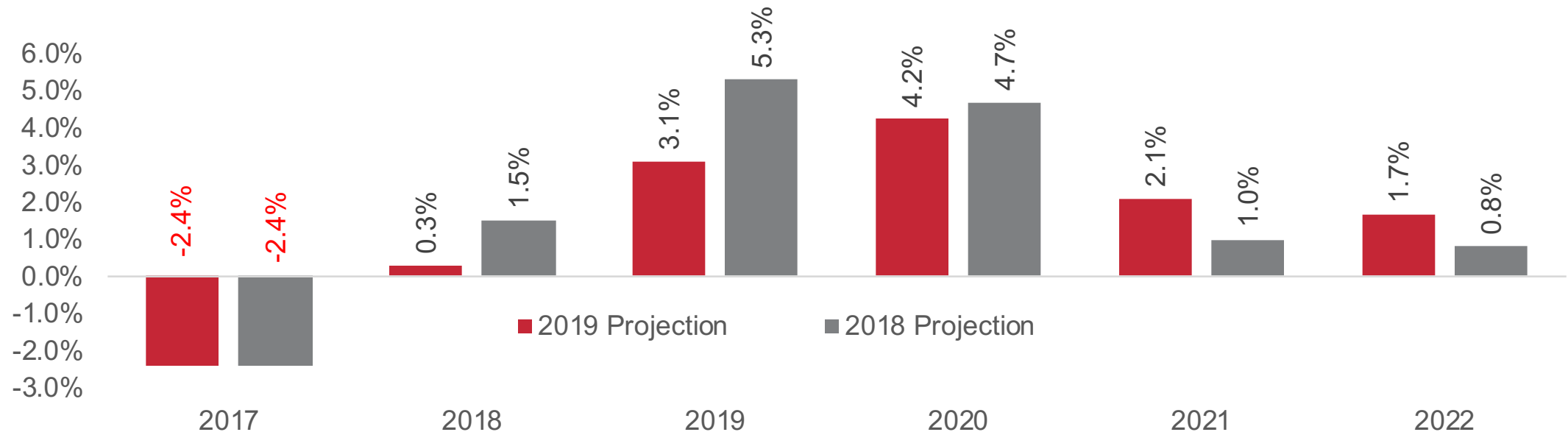


Source: OCIF.

ECONOMIC CONTEXT

- Projections for the next five years are dependent on the amount of federal money allocated to and spent in Puerto Rico, thus there is a great deal of uncertainty present.

Real GNP Growth



Fuente: PR Planning Board (2019). 2017 Statistical Appendix [Table 1]. Estimates by Estudios Técnicos, Inc. (January 16, 2019).

TOPICS

Demographics

María

Beyond Reconstruction

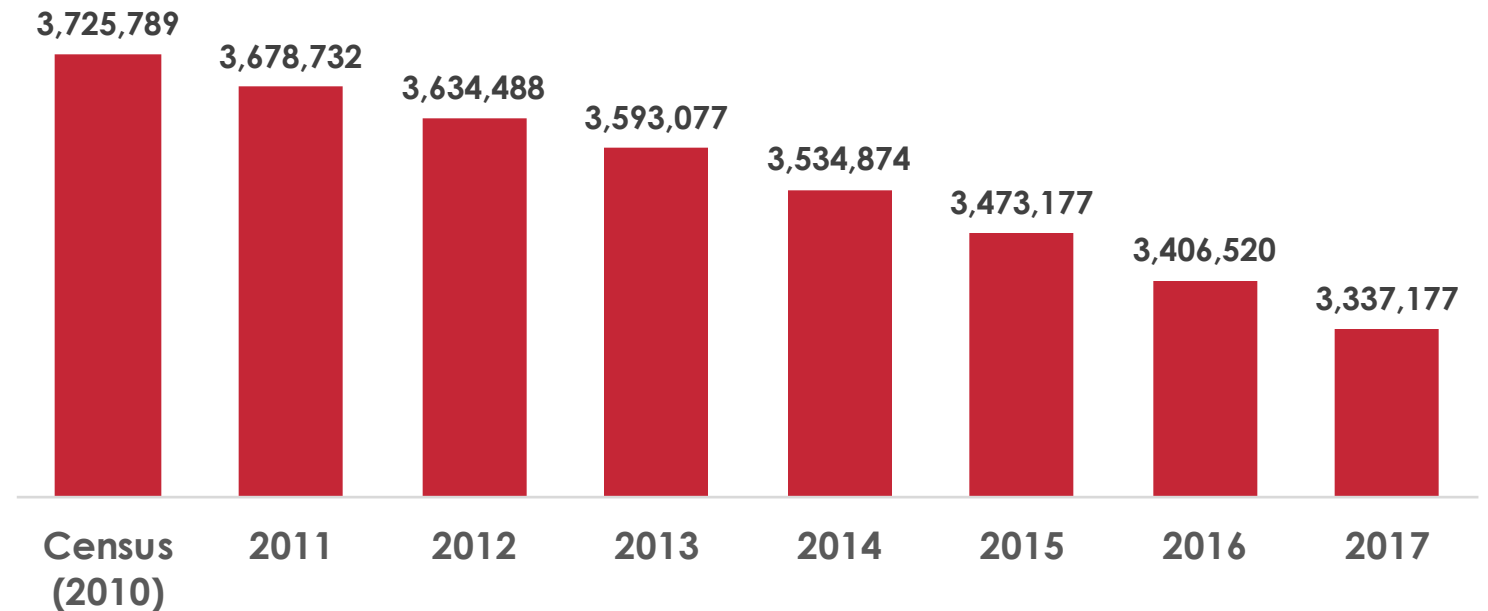


Demographic Context

Population in Puerto Rico

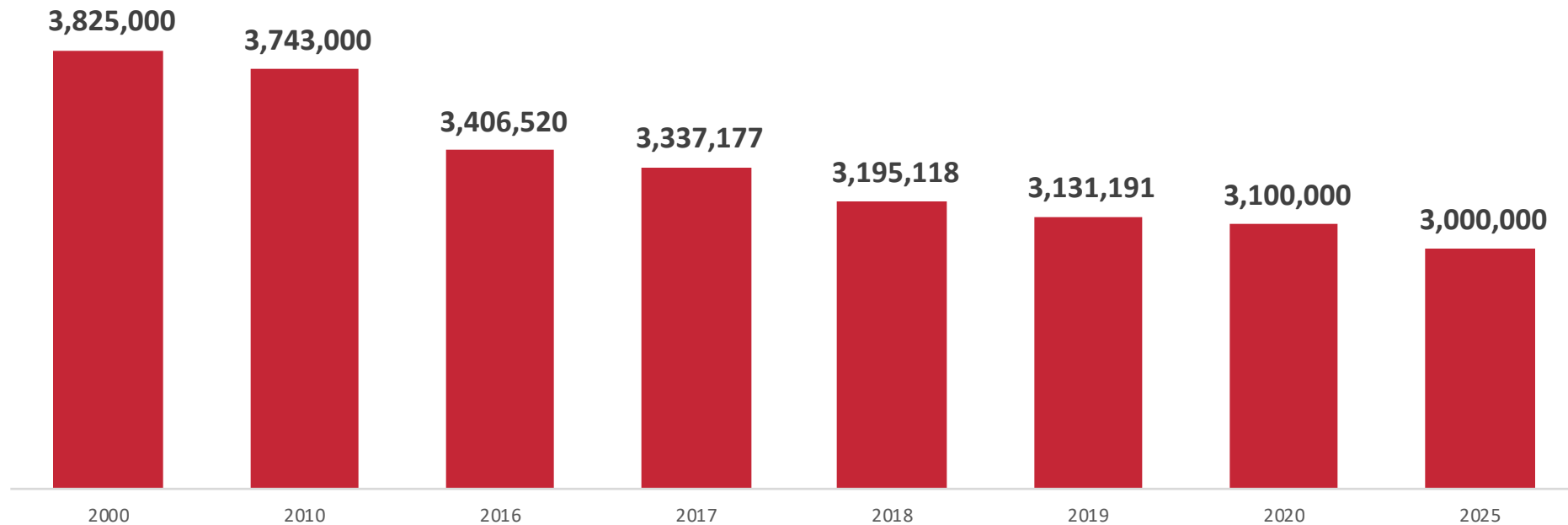
2010-2017

- Population was contracting at a fast pace even before hurricane María.
- Prior to María the projection for population in 2025 was 3.1 million, now it's closer to 3.0 million.



Source: U.S. Census Bureau (2018). *American Community Survey* [Table PEPANNRES].

Population projection



Fuente: Estudios Técnicos, Inc. U.S. Census Bureau.

Migration

Outward migration to the U.S.

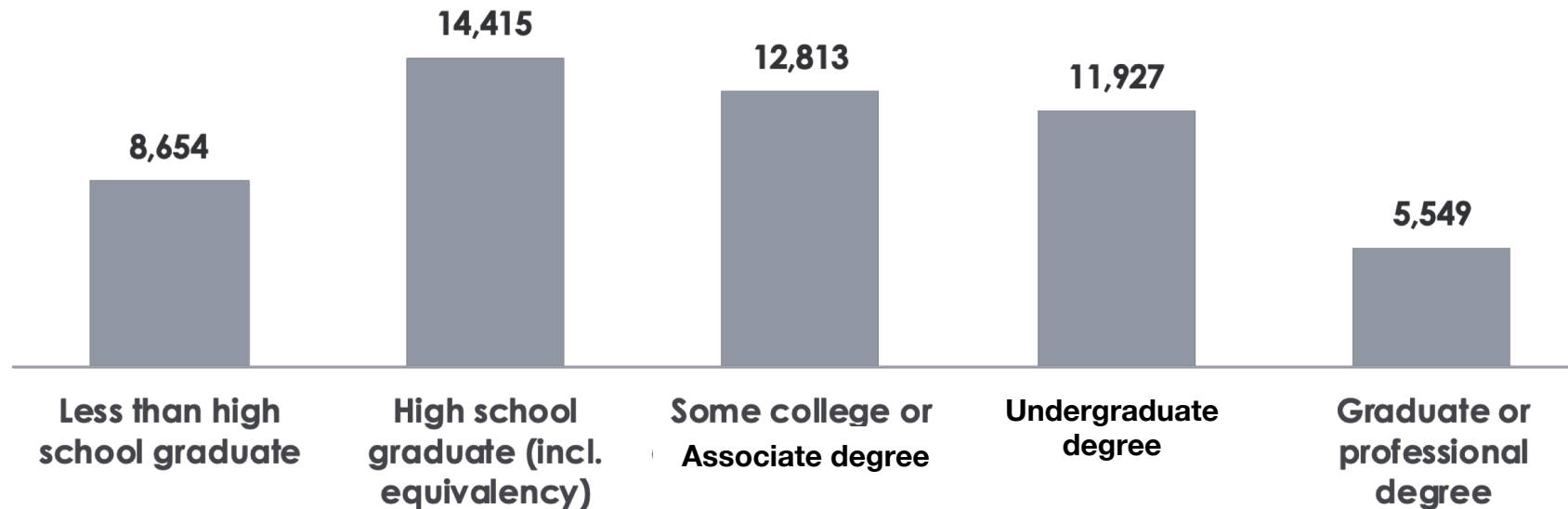
Net Migration	
2014	55,092
2015	65,089
2016	64,757



- The estimate for calendar 2017 is for net out-migration of some 250,000, of which some 175,000 occurred after hurricane María.
- 2018 should go back to numbers similar to 2015-2016.

Migrant profile

Educational attainment of the Puerto Rican Migrant Population 25 years or older



Source: US Census Bureau (2017). 2016 American Community Survey 1-Year Estimates [Table B07409PR].

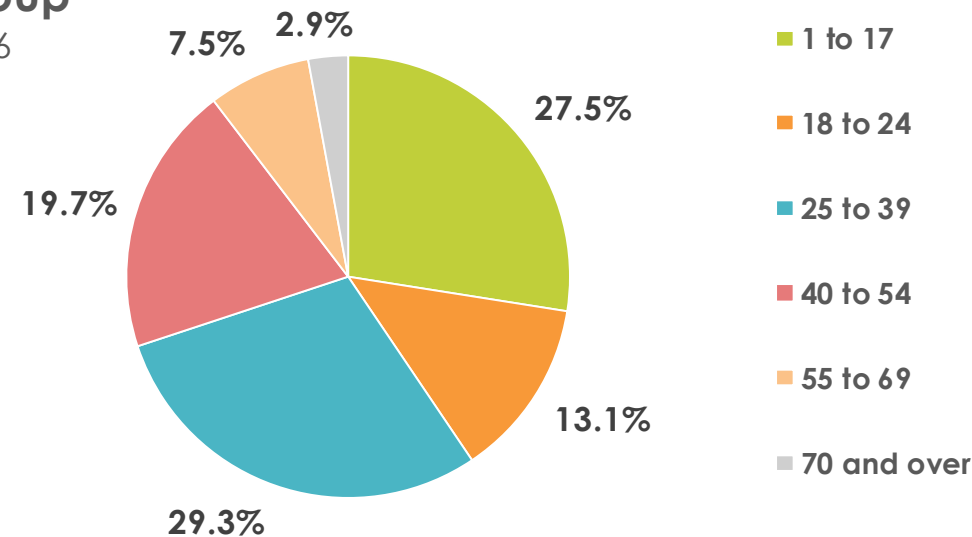
Migration is More Prevalent Among Younger Populations

Migrant Profile

- Out of all immigrants, 41% are 24 years old or younger.
- This has obvious implications for future population growth.

Net Migration in Puerto Rico, by Age Group

2016

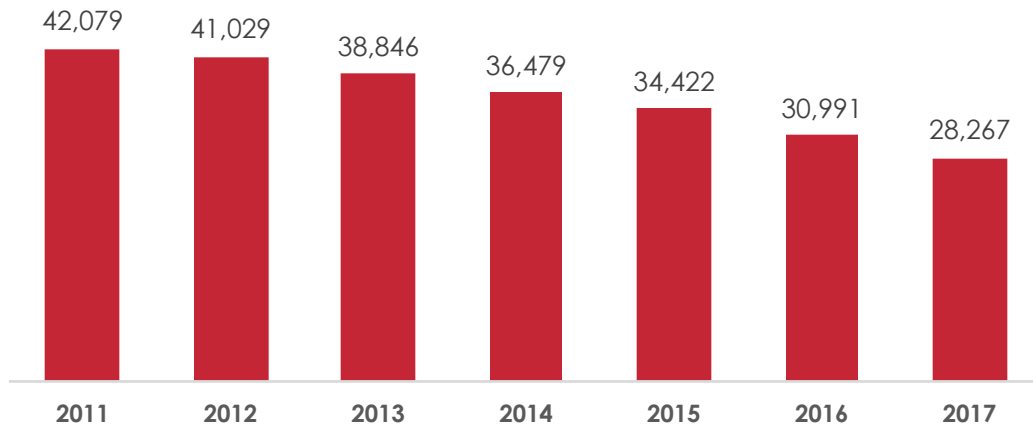


Sources: US Census Bureau (2017). 2016 American Community Survey 1-Year Estimates [Tables B07001PR and B07401PR]. Estimates by Estudios Técnicos, Inc.

Population Growth: Births and Deaths

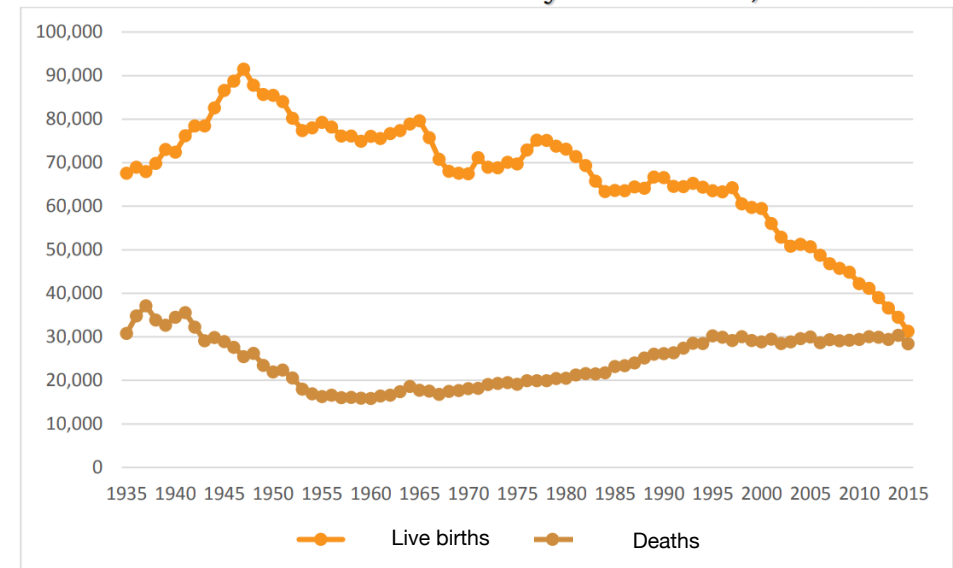
- Puerto Rico's birth rate has been falling for the last three decades and the rate decrease accelerated after 2010.
- In 2015 and since that year deaths have surpassed births.

Births in Puerto Rico
Fiscal Years-- 2011 - 2017



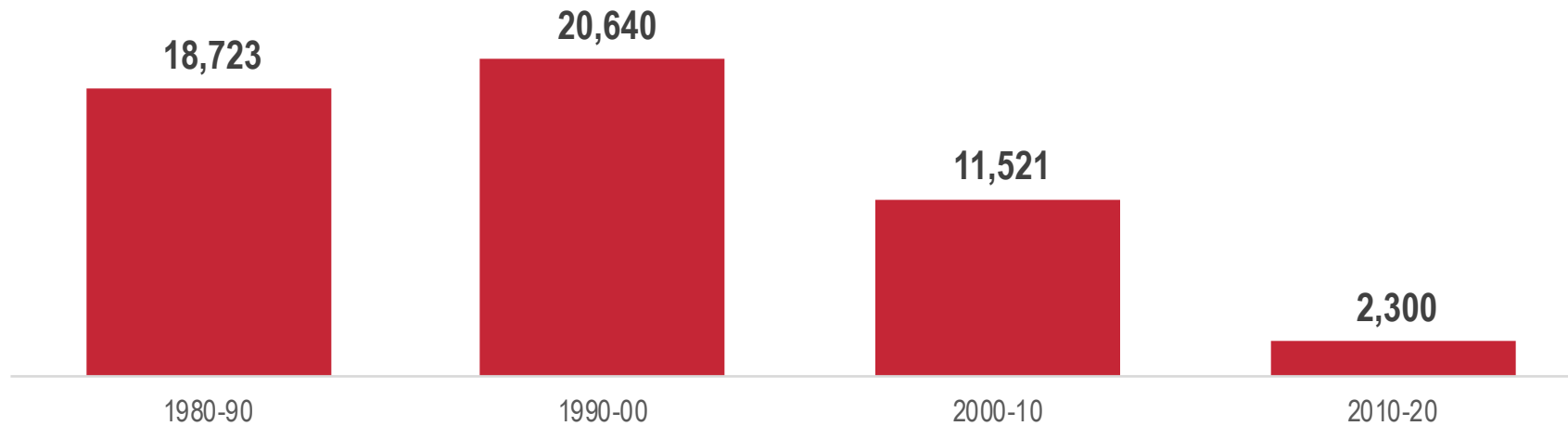
Source: US Census Bureau (2018). *Annual Estimates of the Components of Resident Population Change* [Tabla PEPTCOMP].

Births and Deaths: 1935-2015



Source: Departamento de Salud. Secretaría Auxiliar de Planificación y Desarrollo. División de Estadísticas

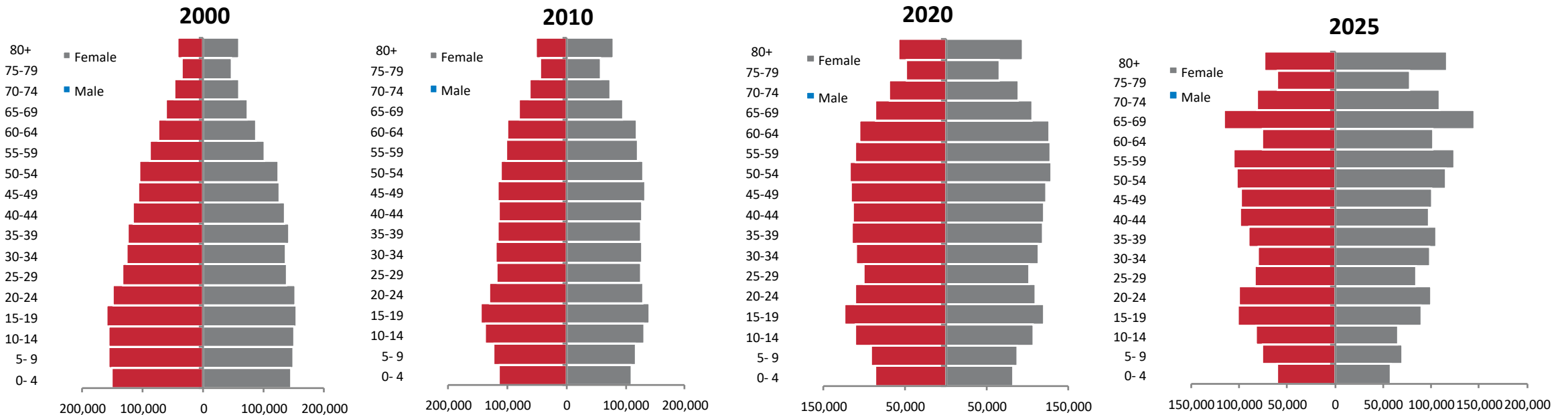
Annual Household Formation



Fuente: US Census Bureau, American Community Survey.

Household formation is a key variable in estimating housing needs. This graph helps in understanding the major reduction in new housing sales.

Population Pyramids



- An aging, mostly low and moderate income population will impact all markets: housing, financial, labor, health services and education.
- Contraction in the labor markets and changing demographics impact pension systems negatively. These systems were planned for younger populations as are many of the social programs.

TOPICS

The Economy

María

Beyond Reconstruction



Cost of Damages of Hurricane María

Concept	Impact Maria (Lower Bound)	Impact Maria (Upper Bound)
Infrastructure Damage	\$15,506	\$19,553
Electric	\$1,450	\$1,800
Water	\$60	\$75
Transportation	\$100	\$120
Housing & Other Structures	\$13,496	\$16,991
Communications	\$400	\$567
Economic Damages	\$15,303	\$19,169
Agricultural Output	\$116	\$145
Government	\$1,487	\$1,858
Lost Business Activity	\$13,700	\$17,166
Cost of Reconstruction	\$23,025	\$28,850
Total	\$53,834	\$67,572

Sources: US Federal Emergency Management Agency (1999). *Plan de Acción Presidencial Para la Recuperación a Largo Plazo de Puerto Rico*. PR Planning Board (2001). *Impacto Económico del Huracán Georges 1999*. Acevedo, S. (2016). *Gone With the Wind: Estimating Hurricane Climate Change Costs in the Caribbean* [Working Paper]. Retrieved from the International Monetary Fund Database. ¹Represents lost revenue from stoppages in service, estimated by multiplying a \$30 monthly average telephone bill by 2 months, and multiplying said subtotal by the affected consumers. ²According to the PR Planning Board, room-nights lost by tourism cancellations were offset by increased room nights from additional assistance personnel. ³Estimated by assuming partial damages worth 10% of the median household value, and a

Federal Funds

Source	Billion
FEMA Public Assistance	\$48.8
CDBG	\$20.0
FEMA Individual Assistance	\$3.2
Private Insurance	\$8.0
Other Federal Funding	\$5.0
Total	\$82.1

Source: Certified Fiscal Plan of the Commonwealth. These funds will be disbursed over a ten year period.

There is still uncertainty concerning amounts, disbursements and uses of these funds. A previous estimate of \$62 billion is closer to reality.

TOPICS

The Economy

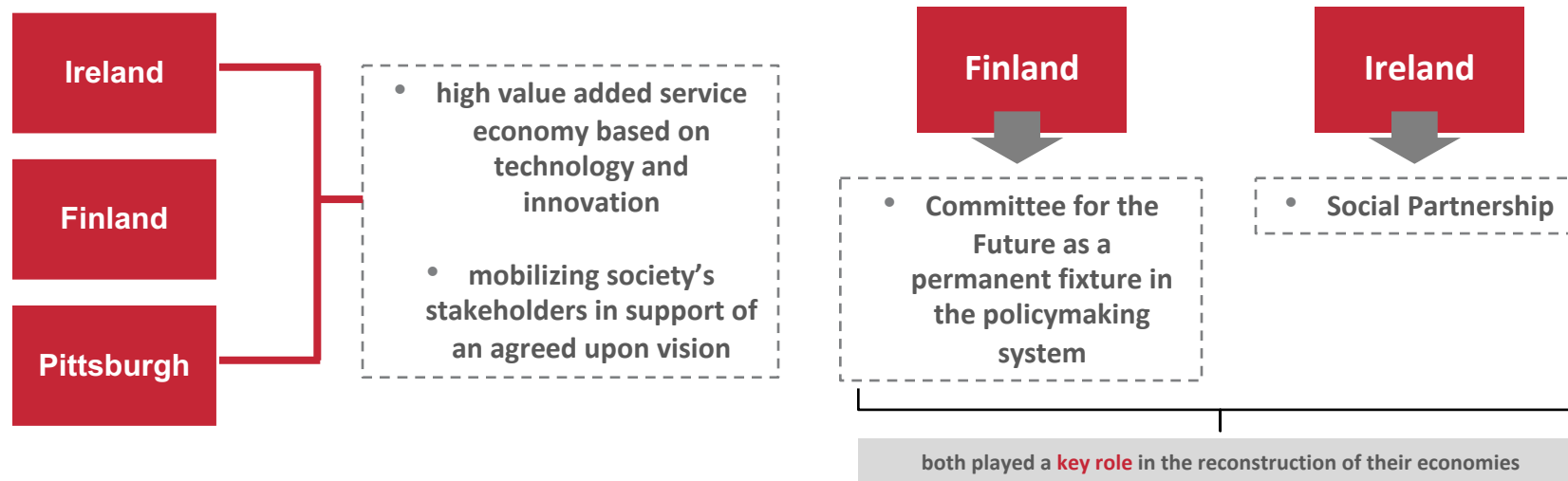
María

Beyond Reconstruction



MAIN ACTIONS

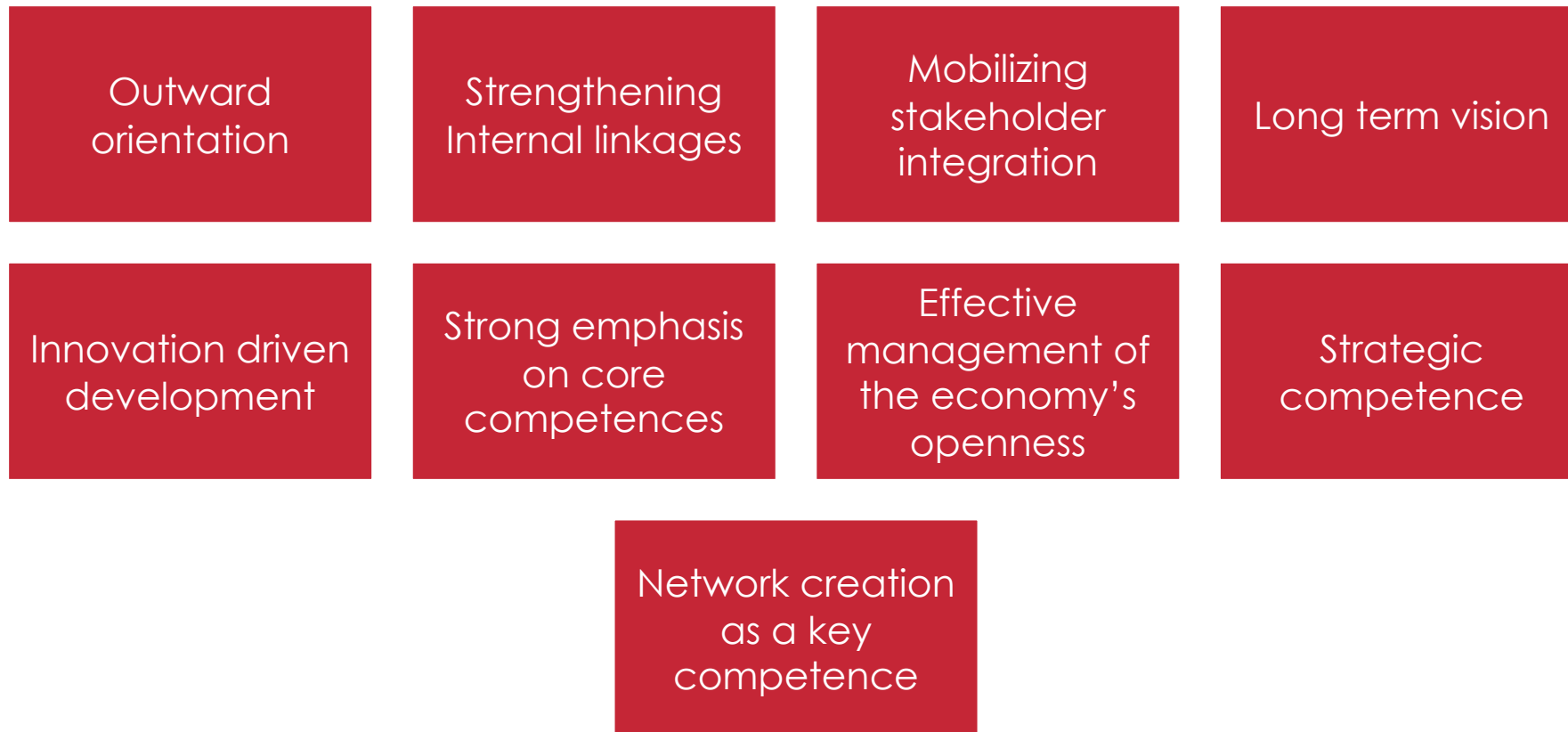
There is no one specific route for reconstructing an economy that has suffered both economic contraction and severe loss of population. There are, however, initiatives that are common to many of these success stories:



The experiences examined and the challenges faced by Puerto Rico will require improved foresight and planning capacity, making risk management part of the economic policy decision making process and making network creation and participation a core concern.

MAIN ACTIONS

The implementation of austerity measures by the Oversight Board responds to a traditional structural adjustment program which is centered on the supply side of the equation; however, an alternative approach must be adopted that incorporates the conditions inherent in a smaller economy with a smaller population:



Structural Reforms

Puerto Rico's serious structural problems require major reforms of various systems that impact development, including those related to the size, efficiency and functions of government. The new DMO and Invest Puerto Rico are major positive steps,

A major such reform relates to the tax system. In the World Bank's *Paying Taxes 2017* report, Puerto Rico is ranked 161 in terms of the Total Tax Rate, that includes compliance costs. Ireland is 4, Singapore is 5 and some of our neighbors such as the Dominican Republic (149) and Costa Rica (60) are better ranked

Taking into account global trends in tax system reforms and Puerto Rico's present needs, Puerto Rico's tax system should:

- Significantly reduce compliance costs
- Move from an income to a consumption base
- Eliminate capital gains taxes in certain activities
- Expense investments in productive activities
- Integrate the Incentives Code with the tax system reform
- Establish the grounds for eventually moving to a VAT system
- Be comprehensive, i.e., incorporate all taxes, including municipal ones

A recently approved tax reform for Puerto Rico does not meet the above criteria.

Post Reconstruction Development

- An open economy such as Puerto Rico's needs to incorporate risk management as part of its economic policy making process due to the extensive risk profile that characterizes a small and very open economic system.
- The high risk profile integrates external factors such as technological, geopolitical, market changes and, of course, changes in U.S. social, economic and fiscal policies. Strengthening foresight capacity is essential in understanding and minimizing risks.
- A long term vision is essential for guiding strategic decisions and structural reforms.
- Sustained development incorporates a number of objectives and integrated approaches to what we call development infrastructures:

Objectives

- Flexibility
- Productivity
- Sustainability
- Pluralism
- Constancy
- Innovation

Infrastructures

- Physical
- Social
- Environmental
- Institutional
- Cultural
- Knowledge

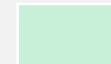
The Development Infrastructures & Social Objectives

INFRASTRUCTURES	OBJECTIVES					
	Flexibility	Productivity	Sustainability	Pluralism	Constancy	Innovation
Physical	Integrated planning and decentralization	Emphasis on connectivity	Focus on renewable energy and decentralized initiatives Iniciativas locales	Stimulate local initiatives (acueductos comunitarios)	Long range planning	Integrating AI in infrastructure planning and execution
Social	Decentralization of social programs	Strengthen STEM programs in education	Training programs that integrate social and environmental concerns	Integrated housing and social service programs	Improve efficiency and decentralized delivery	Create an R&D entity for innovation in social services
Environmental	Community involvement in environmental policies	New energy sources and better land use planning	Include the environment in the Fiscal Plan	Better and more accesible information	Create non government environmental policy entity	Strengthen university R&D capabilities
Institutional	Consolidate processes, deregulate and re-regulate	An investment focused tax system	Adequate and balanced laws and regulations	Consider social infrastructure as a development tool	Minimize political intervention in government activities	Needed a public policy on innovation that covers all infrastructure areas
Cultural	Stimulate institutional learning	Culture as an economic sector	A change of vision: Culture as consumption Culture as investment	Strengthen support for community initiatives	Increase intervention in cultural policy by non government entities	Needed a public policy on innovation that covers all infrastructure areas
Knowledge	Reduce market entry obstacles	Improve technology transfer capacities (Fundación Chile)	Work towards an autonomous innovation system	Improve access by SMEs to new technologies	Strengthen K-12 educational system and R&D infrastructure	Needed a public policy on innovation that covers all infrastructure areas

NEEDS & OPPORTUNITIES

INFRASTRUCTURES

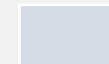
Physical	Distributed generating systems	Industrial Microgrids	Regional airport management and maintenance	Logistics facilities	Roosevelt Roads and Port of the Americas	Road system Improvements and extensions
Social	Integrating IT & Health Services	New approaches to delivery of educational services	New social programs for a changed demography	Housing for the Elderly	Improved delivery channels for health services	Strengthen the non profit sector
Environmental	Solid waste disposal systems	Waste to energy systems	Environmentally sound agro-industrial initiatives	Management and Maintenance of Public Beaches and Nature Reserves	Eco-tourism and Eco-lodge development	Increased use of non fossil fuel sources
Institutional	Improvements in government management systems	Brownfield P3's and privatization of government services	Decentralization and a regional structure	Centralized Handling of Federal Programs and Funds	Medical tourism	Introducing AI and Data Analytics in Government Operations
Cultural	Stimulating the creative economy	Incentivized the film Industry	Integrate cultural programs and tourism	Renovation of Town Centers	Incorporating the diaspora	Cultural Corridor in Santurce
Knowledge	Improve connectivity	New R&D and clinical testing facilities	Value chain completion	Integrating IT with Health services	Implement STEM Curriculum in the Public School System	Internal and External Network Creation



= short term



= mid term



= long term

Some sector perspectives

- Manufacturing will continue to be a key sector, but it will be a very different activity, one in which the boundary between manufacturing and services will disappear to a large extent.
- Agro industry will almost certainly grow in the coming years and it will be technology driven to a significant extent.
- Advanced services will become the leading driver of economic growth not only as inputs in other sectors but as an export sector.
- The health sector will experience major changes due to a hanging demographic profile. It faces serious challenges with respect to funding.
- The educational system has been hard hit by the demographic transition to a smaller and older population and both public and private educational systems will have to transform themselves to face the new demographics.

Going Forward

In the short term Puerto Rico's prospects depend more than anything else on the amount of federal funding. Mid and long term prospects depend on local initiatives and particularly on a carefully crafted vision and the accompanying strategies. Underestimating the complexity of returning Puerto Rico to a sustained development path would be a serious mistake.

Prospects for sustained growth face both downside and upside risks, some of which are:

Downside

- The impact of the federal tax reform 2017
- Delays in receiving and allocating, as well as mismanagement, of federal funds
- Continuing risks from atmospheric events
- Continued out migration
- Delay in assuring a stable and resilient energy grid
- Increased interest rates and petroleum prices

Upside

- Federal funds flow to Puerto Rico as scheduled
- The new CRRO becomes an efficient manager of federal funds
- The Government of Puerto Rico succeeds in securing amendments to the TCJA
- Successfully implementing an energy system that is both stable and resilient
- Right-sizing of Government occurs and fiscal stability is achieved
- Both the DMO and Invest Puerto Rico become effective promoters

Thank you!

José J. Villamil
Chairman
jvillamil@estudios tecnicos.com



T 787.751.1675 **F** 787.767.2117 **E** estudios tecnicos@estudios tecnicos.com
Domenech 113 Hato Rey PR 00918-3501 | Apartado 12144 San Juan PR 00914-0144