

Measuring the Efficiency of Public Sector Investment Management Systems—The Case of Antigua and Barbuda

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ABSTRACT

The institutional context within which public investment decisions are undertaken, and the quality of project selection, management, and implementation, determine the return on investments. This article uses a methodology established by Dabla-Norris et al. (2012) to examine and develop an index of public investment management for Antigua, and Barbuda, and provides recommendations for improving the efficiency of public investment management.

Keywords: Institutions and Growth, Project Evaluation, Infrastructure, Budgets

The economy of Antigua and Barbuda, like many economies, was adversely affected by the global and domestic financial crises. It contracted by about 21 percent between 2009 and 2011, before experiencing sluggish recovery from 2012. This period is also characterized by low government revenues and external financing, which, inter alia, affected the government's ability to finance public investment, an important catalyst for economic growth. Consequently, public investment as a share of GDP declined in 2010 and remained below 2 percent of GDP through 2014, compared to an average of 7.5 percent of GDP during 2006 to 2009. The decline in public investment and the slow economic growth has led to increased calls for a "scaling up" of public investment, particularly to remove infrastructure bottlenecks and to facilitate private sector development.

The efficiency of public investment in Antigua and Barbuda, and other member countries of the Eastern Caribbean Currency Union (ECCU), is low.¹ Given the high indebtedness and limited

1 These comprise of six sovereign countries: Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines; and the two British Overseas Territories of Anguilla and Montserrat.

fiscal space in these countries, the lower than expected outcomes of public investments have raised concerns about their ability to increase economic output while maintaining debt and fiscal sustainability. The context for such statements is perhaps best reflected in the quote attributed to the ECCB Public Expenditure Review Commission (2012):

... public investment is not only the main cause of the currency union's burgeoning, debilitating and negatively impacting debt but is a direct and indirect contributor to the patterns of sluggish and in some years negative growth.

A weak institutional and legal environment, as well as limited information, waste and leakage of resources, and inadequate technical expertise, can contribute to the low performance of public investment. We think that a targeted program of efficiency enhancements in public investment management (PIM) systems to address these shortcomings can improve the quality and focus of public investments as well as increase their returns.

This article diagnoses public investment management in Antigua and Barbuda using the Dabla-Norris et al. (2012) methodology to construct a public investment management index (PIMI) capturing four (4) major components of PIM systems—*strategic guidance and project appraisal; project selection and budgeting; project management and implementation; and project evaluation and audit*. It then uses the PIMI to identify areas where PIM systems can be strengthened to minimize major risks and provide an effective process for managing investments.

The article concludes that Antigua and Barbuda's public investment management systems are weak and that there is substantial scope for institutional strengthening—of structures, rules, and procedures—to improve the quality and efficiency of public investment. Better transparency and accountability requirements and public oversight of planning frameworks, improved decision making, and increased reporting, combined with better compliance with rules and procedures could increase the likelihood of achieving investment objectives. Additionally, there is much scope for improving the staffing and technical capacity for supportive structures in areas such as in economic planning, cost-benefit analysis, project management, audits and asset management, and information systems.

The rest of the article is organized as follows. The next section provides a brief overview of the literature on public investment and growth, focusing more on diagnostic assessment frameworks. The third section outlines the methodology, developed by Dabla-Norris et al., that is used in the article and other sources of data. The assessment and scores for sub-indices are provided in the fourth section. A summary of the PIMI for Antigua and Barbuda, and recommendations for institutional strengthening and capacity building, are presented in the fifth section. Finally, the sixth section provides conclusions about the PIMI and its usefulness for Antigua and Barbuda and the ECCU region.

LITERATURE REVIEW

There is broad consensus that public investment expenditures to sustain growth and crowd-in private investment resulted in lower than expected outcomes in many member countries of the Eastern Caribbean Currency Union (ECCU). These low outcomes evinced concerns about the role and quality of allocative decision making institutional arrangements, as well as the efficacy of public investment management (PIM) systems in the ECCU in spurring economic growth and creating employment. Since most public investment in the ECCU is financed by debt, lower economic growth, relative to the cost of financing, also raises concerns about long term debt and fiscal sustainability.

Public investment is concerned with addressing market failure through the provision of critical intermediate inputs in the form of physical, social, and economic infrastructure, which cannot, under normal market conditions, be supplied by the private market. By extension, it could be argued that public investment decision making is not positioned to take full advantage of the discipline provided by traditional market forces. Taken in this context, the ability to measure institutional effectiveness assumes greater importance in supporting the analysis of the macroeconomic implications of the public investment program, and the design of reform interventions that address the specific challenges affecting the PIM systems in individual countries.

Rodrik (2000) indicates that, in the absence of adequate institutions, incentives would either not work or generate perverse results. He relies on a definition of institutions provided by Lin and

Nugent (1995) as “a set of humanly devised behavioral rules that govern and shape the interactions of human beings, in part by helping them to form expectations of what other people will do.” The World Economic Forum (WEF) uses a concept of institutional quality—determined by the legal and administrative framework within which individuals, firms, and governments interact to generate income and wealth in the economy—as one of the 12 pillars of competitiveness in its annual Global Competitiveness Index. Its assessment of the role of institutions goes beyond the legal framework to include such factors as attitudes toward markets and freedoms, efficiency of operations, excessive bureaucracy and red tape, corruption, public procurement, transparency, and proper management of the public finances.

For the purposes of this article, we define the institutional arrangements for the management of public investments as comprising the following five (5) discrete but interrelated components: (i) the regulatory framework; (ii) the organizational structures; (iii) the overarching strategic framework; (iv) the policies, practices, and procedures adopted that govern the management of the investment cycle; and (v) the capacity of the public sector entities involved in the design and implementation of the public sector investment program (PSIP).

The literature on PIM reflects two general lines of inquiry, with analytical work focusing on: (i) measuring the impact of public investment efficiency on macroeconomic variables like the productivity of investment outlays, fiscal and debt dynamics, and the measurement of the capital stock, and (ii) assessing the efficiency of investment project delivery systems. They are by no means mutually exclusive, but feature many points of intersection and common interest in quantifying the efficiency factors in allocative decision-making.

Roache (2007), after controlling for natural disasters and the electoral cycle in ECCU member countries, concludes that the direct public investment impact was positive, but that the rate of return on ECCU investments was negative 2 per cent.² This compares unfavorably with the rate of return of 10.3 per cent and 7.6 per cent for Germany and Greece, respectively. Consequently, public

2 Public sector investment during the period of assessment was significant, averaging about 9 percent of GDP between 1975 and 2005.

investment financed by borrowing had a larger impact on increasing the debt stock than on GDP. Gonzalez-Garcia, Lemus, and Mrkaic (2013) indicate that the government investment expenditure multiplier in ECCU member countries is positive and less than one (0.60), and suggest that much of the intended investment impulse ends up expanding the demand for imports, because the countries are small island economies highly open to international trade. These results suggest that understanding the drivers of inefficiency in the ECCU's public investment systems should provide an objective basis for the choice of targeted interventions aimed at increasing productive public investment and its growth benefits.

Shortcomings in PIM systems are underpinned by institutional weaknesses at each stage of the project cycle. Complementing this view is the work of Grigoli and Mills (2014). Their cross-country assessments of the effect of institutional quality on the levels, volatility, and quality of public investment found, *inter alia*, that there is an inverse relationship between public investment levels and institutional quality, and that weak governance increases the volatility of public investment. This is supported by Chakraborty and Dabla-Norris (2009) who find that the quality and availability of complementary public oversight and enforcement affects the quality and effectiveness of public capital. Hulten (1996) finds that the efficiency and quality of institutional arrangements, particularly those supporting the operations and maintenance of completed facilities, is the most significant important explanatory factor in assessing growth differentials between high and low growth economies. Gupta et al. (2014) find that (i) public capital, when adjusted for efficiency of investment, is a significant contributor to growth and (ii) the different stages of the PIM system have varying impacts in explaining capital accumulation and economic growth in low and middle-income countries. More recent analytical work (IMF 2015) found a strong positive relationship between the overall strength of PIM institutions and the efficiency of public investment, both when using a survey-based indicator of infrastructure quality, the physical indicator for infrastructure access, and a hybrid indicator which combines the two. This analysis concluded that, in the absence of a comprehensive and cohesive set of PIM institutions, the potential benefits from a ramping up of investment are much diminished. These results

imply that policy recommendations should be tailored to country circumstances.

The World Bank³ public expenditure reviews of ECCU countries (2003b; 2004; 2005c and 2005d) and the ECCB Public Expenditure Review Commission (ECCB 2012) indicate that the significant debt contracted to finance investment projects is one of the main reasons for the weakened fiscal positions in many of the countries. They cite the need to strengthen PIM systems—from project conceptualization, selection, design, planning, to execution and management—to increase public investment efficiency and improve value for money. The World Bank notes that many of the processes for project preparation, and the formulation and implementation of public investment programs, are weak, and even when explicit procedures exist, they are not always practiced. Generally, the tradeoffs between investments are not based on a comparison of their projected economic and social impact, nor are the investments supported by overall strategic plans embodied in sector analyses that indicate why these investments were selected and how they were to impact private investment.

While, in many cases there is reasonably good project coordination between donor agencies and line ministries, the relationship between these agencies, and the Planning and Budget agencies of the Ministry of Finance, is sometimes inadequate—resulting in insufficient preparation and oversight of capital expenditure and the budget. This increases the likelihood that the Ministry of Finance could be apprised of the financial requirements for operating and maintaining investments toward the end of project construction, with consequences for the size, allocation, and management of the recurrent budget over the medium term. Additionally, assessing the cost-effectiveness of investments, and the adequacy of design and implementation, is difficult because of the inadequacy and non-standardization of data on capital expenditure that can either be overstated or understated.⁴

3 Average capital expenditure during 1995 to 2001 ranged from 5 percent of GDP annually in St. Kitts and Nevis to 11 percent of GDP in Grenada (World Bank 2004).

4 Capital expenditure could be overstated when it includes recurrent expenditures such as maintenance of infrastructure and buildings, supplies, social protection programs, technical assistance, marketing, etc. or understated when recurrent expenditures during the construction phase are excluded. On the other hand,

Lastly, there is insufficient attention to value-for-money in project implementation because of (i) inadequate procurement laws and practices which often limit competition between suppliers and service providers; (ii) inadequate oversight results in project designs that may not satisfy needs, requirements, or fit the budget; (iii) poor contract management leads to the variation of outputs or expenditures higher than contracted and (iv) lack of oversight of ongoing works by ministries due to a shortage of qualified staff.

The low returns on public investment cannot be explained by inefficient PIM systems alone. Many scholars suggest that small size, geography, heritage, and inadequate public administration reforms in the post-independence period have constrained the ability of ECCU countries to develop strong public institutions. Small and micro states^{5, 6} tend to have small and/or poor domestic resource bases, small domestic markets, and scarce labor that limits the structure of domestic output and the availability of financial resources (Brown 2010; Endegnanew, Amo-Yartey, and Turner-Jones 2012). The size-related constraints compound the vulnerability of these countries to natural disasters (hurricanes) and to other external shocks (terms of trade shocks), the occurrence of which adversely affects their economies and public finances, and limits their capacity to fund recovery and reconstruction or diverts resources away from providing public services.

Small size limits the achievement of economies of scale in public administration and the provision of public goods, and consequently, small countries have high fixed per capita costs relative to public finances. Additionally, public services generally lack capacity and technical expertise—because of the limited pool of skilled human resources or specialists—which affects implementation and absorptive capacity (Browne 2015). The expansion of government developmental activities and the creation of new

sometimes infrastructure investments are not included in capital expenditures but “below the line” in the fiscal accounts. The non-standardization of data makes cross country comparisons difficult.

- 5 Small states are defined as sovereign states with populations less than 1.5 million consistent with the definition used to define small states in the influential Joint Task Force Report on Small States of the Commonwealth Secretariat and World Bank 2000. Forty five (45) countries were identified using this definition.
- 6 ECCU countries are less than 300 square miles in geographic area and have populations of less than 200,000. The latter would qualify them as microstates.

ministries and departments to provide a better standard of living for citizens in the post-independence period further exacerbated the problem. While training of employees was provided as part of the reorganization of public administration, insufficient attention was given to compensation, employee motivation, and performance management systems, which limited the achievements of capacity building initiatives (Bissessar 2015; Davis-Cooper 2014). Brown (2010) disputes the view that such small societies have better social homogeneity and cohesion to facilitate greater flexibility and decision-making efficiency. He contends that working relationships in small states tend to be more personal, more intense, and more emotionally charged, resulting in social and political tensions that could undermine discipline and that can be unproductive. These are also contributory factors to employee turnover and migration of talented and skilled workers. Relatedly, Jones, Walcott, and Grey-Alvaranga (2015) indicate that weak leadership, increasing political interference, inadequate governance structures and enforcement have contributed to the decline in administration, PFM, and technical capacity.

The Public Expenditure Review Commission 2012 acknowledges that small size; the prevalence of natural disasters; and inadequate insurance coverage, and maintenance of assets contribute to the negative returns on investments. They opine that these factors are either avoidable or can be minimized through adequate institutional and regional arrangements; better disaster risk mitigation, prevention, and management (Easterly and Kraay 2000); appropriate design and planning of investments; and proper execution and management of the budget. The Commission and other observers (Pacific Institute of Public Policy 2008) suggest that there is significant scope to improve and prioritize reforms of public institutions, so that small states can be more flexible and unlock their economic potential in an increasingly competitive and changing global environment.

Reforms to PIM systems could be part of efforts at comprehensive public administrative and public financial management reforms. In this context, the diagnosis of the PIM system would benefit from the use of a targeted, evidence-based approach, the adoption of which can be facilitated by the application of an institutional efficiency index. While numerous studies assess public investment efficiency from a country specific context, few

undertake broad diagnostic assessments of the components of public investment management using multiple country assessments, or case studies, that provide benchmarking and comparisons across countries and groups.

Dabla-Norris et al. (2012) established an index of public investment management (PIMI) efficiency for seventy-one (71) countries, systematizing available information on the desirable characteristics and functions of different stages in the public investment cycle. Four (4) stages of the public investment management cycle are identified, that capture the basic processes and controls likely to yield efficient public investment decisions, while recognizing the role of institutions, capacity, and incentives. The PIMI has the appeal of assigning scores for each subcomponent, sub index, and index of PIM systems, allowing monitoring and evaluation over time and comparisons across countries. The inclusion of small states from the Caribbean and other regions broadens its appeal for comparisons among small states.

Rajaram et al. (2010; 2014) establish a framework consisting of eight (8) critical features of PIM systems with coverage similar to that of Dabla-Norris et al. Their indicator-based approach provides a basis, both for objective assessment, as well as highlighting weaknesses that should be addressed if the use of fiscal resources is to enhance public sector assets and economic growth. The framework applies to both conventional projects and public-private partnership (PPP) modalities. Unlike the PIMI, it explicitly recognizes the need for the use of public sector comparator projects in the appraisal of proposed PPP projects to ensure that the modality that offers the best value for money is chosen. Rajaram et al. (2014) expand the coverage of the framework developed in 2010, and use evidence from twenty-four (24) case studies that provide robust confirmation of the relevance of the approach to a wide range of country circumstances, while also confirming that country setting (reflecting different political and institutional histories) has an important influence on the actual functioning of PIM.

The Public Investment Management Assessment (PIMA) framework established by the IMF (2015), after our surveys were conducted, examines fifteen (15) key institutions that shape the three (3) main stages—*planning, allocation, and implementation*—of public investments. In some respects, the PIMA improves upon the other evaluations of PIM—as it is broader in scope, includes

elements related to macro-fiscal frameworks, integration of investment planning in medium-term budgeting, coordination of public investment across levels of government, and private sector participation in the provision of public infrastructure. The PIMA is based on a review of the practices in twenty-five (25) countries and is more relevant for countries that have advanced practices in fiscal principles, macro-fiscal frameworks, and PIM systems.

The three (3) studies explicitly recognize that institutions play a pivotal role in the development process. Additionally, the mapping from country classification by country setting, to the depth and quality of its public investment management system, is consistent among them and indicates that (i) more developed countries generally have better systems while low income countries and fragile states have the weakest PIM capabilities and (ii) countries with stronger PIM institutions have more predictable, credible, efficient, and productive investments.⁷ Strengthening these institutions could close the public investment efficiency gap in countries.

In 2010, Antigua and Barbuda undertook a Public Expenditure and Financial Accountability (PEFA) assessment. The PEFA uses a scoring methodology for each subcomponent of the PFM system, allowing monitoring and evaluation over time and comparisons across countries. The 2010 PEFA assessment was used as a basis for the Antigua and Barbuda government undertaking a 3-year program of reforms, geared at strengthening its public financial management. We used the opportunity to apply the PIMI methodology to the case of Antigua and Barbuda alongside its 2014 PEFA which was conducted in early 2014.⁸ While other ECCU countries had undertaken PEFA's in 2010, none had a comparable comprehensive PFM reform program or scheduled a follow up PEFA before 2014. Notwithstanding the standalone assessment, it is still of relevance to other ECCU countries given their similar characteristics.

7 The 3 studies of PIM frameworks exclude assessments of the ECCU member countries. Only the PIMI includes assessments of Caribbean and small states.

8 Antigua and Barbuda was the beneficiary of €3million technical assistance grant financed by the European Union over the period 2010 to 2013 which was extended and financed in 2014 for another 3-year period.

METHODOLOGY

The PIMI

The PIMI seeks to identify the institutional features that minimize major risks and provide an effective process for managing public physical investments—details are provided in Dabla-Norris et al. (2012). Four (4) consecutive stages of the public investment management cycle are identified—*strategic guidance and project appraisal; project selection and budgeting; project management and implementation; and project evaluation and audit*. The strategic guidance and project appraisal phase involves the identification of investments based on national priorities for development that satisfy economic, social, environmental, and financial impact criteria. The project selection and budgeting phase comprises the selection of projects and the allocation of funds, through the use of multi-year budgetary frameworks. The project management and implementation phase includes the procurement, execution, monitoring, reporting, and oversight of projects. Lastly, project evaluation and audit focus on determining whether a project has met its objectives within project design and cost parameters.

Tests of the correlations of the intra-sub-index and the reliability of sub-indices are robust. The same conclusion is reached regarding the construction of the overall PIMI, because of the strong and positive correlation with real per capita GDP and growth. The overall PIMI is also positively correlated with five (5) existing relevant indices: the Budget Institutions Index constructed by Dabla-Norris et al. (2010), Kaufman-Kraay governance indicators (including Government Effectiveness, the average of the Governance Indicators, and the Control of Corruption index) and the World Bank's Country Policy and Institutional Assessment (CPIA) index,⁹ focusing specifically on the sub-CPIA index. This suggests that the PIMI is a useful tool to capture the overall institutional environment of PIM systems.

Several cross-cutting elements are identified at each stage that reflect the basic processes and controls likely to yield efficient public investment decisions, while recognizing the role of

⁹ The CPIA is a rating of 95 countries against a set of 16 criteria grouped in four clusters: economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions.

institutions—comprehensive and credible frameworks, procedures, rules, transparency—capacity, and incentives. These facilitate the construction of seventeen (17) components—identified in Box 1 – from which four (4) sub-indices are constructed reflecting each stage and yielding the overall PIMI.

Strategic Guidance and Project Appraisal

Effective public investment decisions should be the result of a focused and determined approach to an overall development strategy. The identification of investments should reflect a national plan and government policy and strategies in prioritizing capital expenditure—the choice, scale, and scheduling of investment projects—that satisfy the criteria of financial and economic viability through coordinated and integrated activities across the public sector. Such an approach is also critical to the optimization of resource usage in planning.

This sub-index assesses whether:

- National development plans and/or sectoral strategies for public investment are available, strategic plans are made, and costs are estimated. National plans provide broad strategic guidance and are an important starting point to establish economy-wide development policy priorities. They should be supplemented by a sector level strategy or subsector level strategy that provides a more detailed translation of the overarching priorities and implementation plan into a costed sector investment strategy. This provides the basis for the project identification phase.
- Project appraisals or ex ante evaluations are based on the availability and application of appraisal standards. Public investments are likely to drive higher marginal productivity *ex post* if the government is able to *ex ante* select high return projects—thereby eliminating wasteful projects and ensuring efficient use of available funding for investments.¹⁰ Projects proposed for financing are selected based on a positive evaluation of their socio-economic desirability. The cost of project evaluation must also be balanced against the benefits of improved decision making and the appropriate technical

¹⁰ The PSIP should also include investment projects undertaken by statutory agencies, such as state-owned enterprises, or private corporations that are financed through loans guaranteed by the government.

Box 1. Key Components of the Public Investment Management Index (PIMI)**1. Strategic Guidance and Project Appraisal**

- Nature of strategic guidance and availability of sector strategies
- Transparency of appraisal standards
- Observed conduct of ex ante appraisals
- Independent review of appraisals conducted

2. Project Selection and Budgeting

- Existence of medium term planning framework and its integration to the budget
- Inclusion in budget (or similar) for donor funded projects
- Integration of recurrent and investment expenditures in budget
- Nature of scrutiny and funding supplied by legislature, including its committees
- Public access to key fiscal information

3. Project Implementation

- Degree of open competition for award of contracts
- Nature of any complaints mechanism relating to procurement
- Funding flows during budget execution
- Existence and effectiveness of internal controls, such as commitment controls
- Effectiveness of system of internal audit

4. Project Evaluation and Audit

- Degree to which ex-post evaluations are conducted
- Degree to which external audits are produced on a timely basis and scrutinized by the legislature.
- The maintenance of asset registers, and/or asset values.

Source: Dabla-Norris et al 2012.

capacity of ministries and departments. Cost-benefit analysis (CBA) of projects— technical, financial, economic, institutional, management, and potential social (including environmental) impacts—is the standard economic appraisal technique used. However, where traditional CBAs cannot be applied because benefits are hard to quantify or monetize, or data is unavailable, other appraisal techniques such as Cost-Effectiveness Analysis and/or Multi-Criteria Analysis can be used (EIB 2013). Guidance and appraisal standards are necessary, so that the application of the alternative methodologies to projects, where feasible, would yield the same decision about the suitability of the project for investment.

- Appraisal standards are reinforced by some form of independent check. Where departments and ministries (rather than a central unit) undertake the appraisal, an independent peer review might be necessary in order to check any subjective, self-serving bias in the evaluation.

Project Selection and Budgeting

Linking and integrating the Public Sector Investment Program (PSIP) with the medium-term budget cycle facilitates the planning of the budgetary process, sets a framework for ensuring aggregate fiscal discipline, while acting as a bridge to the goals and objectives of a country's development strategy. The integrated approach encourages complementarity in inter-ministerial and interdepartmental programming and reduces duplication of activities. Specifically, the sub-index assesses whether:

- A medium-term budget framework (MTBF) exists that (a) links multi-year budget forecasts to annual budgetary policies and (b) determines whether multi-year current and new policies—reflected by recurrent and investment expenditures in the budget—can be financed within annual aggregate fiscal targets.
- Information on donor-funded investment is included in the budget. This is particularly important in countries where donor funding is significant and is used to create assets.
- There is a formal review to reinforce the appraisal standards and PSIP process through (a) the budget committee or equivalent of the legislature and (b) high levels of public disclosure or access to key fiscal aggregates, contract awards, and external audit reports. These assist in reinforcing the appraisal standards and accountability framework for project selection.

Project Implementation

Project implementation requires a wide range of institutional arrangements to facilitate timely and cost-effective implementation. These include efficient procurement practices and available funding for project execution, as well as appropriate internal budgetary and project monitoring and controls that support financial and project management. Weaknesses in the institutional arrangements can result in chronic under-execution of investment budgets, rent seeking, and corruption. This index evaluates the strength of project implementation. Specifically, it assesses the:

- Strength of procurement practices using two (2) indicators—(i) the extent to which practices for awarding contracts are competitive and free of collusion between suppliers and

government purchasers; (ii) the existence and operation of a procurement complaints mechanism to provide adequate checks and balances in the process.

- Extent to which under-execution of capital budgets has been a chronic problem over the past three years. Interruptions in, or unpredictability of, funding flows, whether own-sourced or donor financed, can undermine efficient implementation of projects and result in under execution of the capital budget (World Bank 2005b).
- Existence and effectiveness of internal controls and of the internal audit function. These reinforce the drive for efficiency and decrease corruption in project implementation – through (i) the use of appropriate systems for contract management and oversight of ongoing works and (ii) the implementation of standard procedures to clarify or correct expenditure deviations.

Project and Asset Register Audits, and Ex Post Evaluation

Project audits focus on comparing project costs, schedules, and performance specifications with those established for the project design, while ex post evaluations of projects assess whether a project has met its objectives. The latter is an attempt to revalidate the project's feasibility with regard to relevance, efficiency, and effectiveness.

The availability of comprehensive and reliable fixed or non-financial asset registers or inventory of public sector properties can be used to (i) verify the existence of actual assets, their location and values, and ensure the accuracy of related financial records and (ii) provide information on the current condition of assets and determine when assets need to be disposed of, maintained, and replaced. Essentially, this facilitates physical asset planning and management including repair, disposal, and replacement, and is useful in the capacity constraints and the costs of addressing a country's infrastructure needs. In countries vulnerable to natural disasters, this could also support the timely completion of post-disaster damage assessments and the estimation of the replacement costs of the capital stock. The assessment of the stock of physical capital is also useful for estimating the returns to public sector capital more accurately, decomposing growth into total factor productivity and factor accumulation, and better capturing the

effect of investment spending on growth (CDB 2014).

The index assesses the following dimensions:

- Whether ex-post evaluation of domestic projects are routinely undertaken and performed by the Auditor General or the executive and whether investment projects are routinely subject to external audits.
- The extent to which asset registers or inventory of public sector property is maintained.

Scoring of PIMI

For each component, a maximum of four (4) possible scores are established, based on criteria intended to focus on key characteristics of processes and controls that are likely to yield efficient public investment decisions. For instance, a zero score for a particular component indicates that the characteristics for efficiency in public investment management were nonexistent; the next score indicates the presence of at least one characteristic; the next highest score indicates the presence of at least two (2) characteristics; and the highest score (4) indicates the presence of all critical characteristics (see Appendix I).

The benchmark *PIMI overall index* and the four sub-indices are constructed using a simple arithmetic mean. For example, the *Project Selection* sub-index is the simple average of its five indicator terms, while the *Project Evaluation* sub-index is the simple average of its three indicator terms. The PIMI overall index is then derived as a simple average of the four sub-indices. The advantage of arithmetic averaging is that it is straightforward and transparent.

$$(1) \quad S = 1/n \sum_{i=0}^n X_i$$

$$(2) \quad PIMI = 1/n \sum_{i=0}^n S_i$$

S = Sub index which is the average of indicator terms

n = the number of items being averaged

x_i = the value of each indicator term being averaged

PIMI = the overall index which is the average of sub-indices

S_i = the value of each sub-index being averaged

The PIMI is constructed using data obtained from structured interviews with six (6) officials, each having responsibility for, or expert knowledge of, specific elements of the public investment

management process in Antigua and Barbuda during 2013 and 2014.¹¹ The results of the 2014 PEFA assessment on how national public investment management systems function across different stages of the investment cycle during 2010 to 2013, was also used to corroborate the responses from the questionnaire.¹² A table on the questions and the scoring methodology developed by Dabla-Norris et al. for the PIMI, and the data sources used for the article are included in Appendix I. The questions were used to survey government representatives with responsibility for the various dimensions covered in the PIMI.

The PIMI does have some shortcomings. Dabla-Norris et al. note that the PIMI does not attempt to provide an exhaustive catalogue of all aspects of public investment management. They note that practicalities associated with data availability constrain the:

- Interpretation of data that may be system-dependent such that their inclusion becomes problematic. For instance, the role of the legislature can be reflected in various ways—in reviewing or amending budgets, in introducing projects, or in stopping projects that are underway. Rather than attempting to codify meaningful differences in the role of the legislature, the focus was relegated to roles that appear acceptable across all jurisdictions—such as the scrutiny role and the requirements for transparency, including the provision of public information.
- Identification of data in a number of other areas which are pertinent to an assessment of the efficiency of public investment management. For instance, monitoring project implementation would minimally involve a comparison of project progress relative to the implementation plan, and/or to earned value. However, at this stage, it has proven difficult to identify a suitable source of data on this issue.
- Choice of indicators that could be included. For instance, it would have been useful to include information on the extent to which countries fund maintenance of their assets. While higher funding does not necessarily translate into better-maintained

11 These include the Financial Secretary, Permanent Secretary in the Ministry of Finance, Permanent Secretary of Public Works and Housing, Director of Budget, Director of External Audit, Head of Development Planning Unit.

12 The 2010 Antigua and Barbuda PEFA report which assesses public management processes from 2007 to 2009 was also used as a reference.

assets, low funding or ineffective asset management programs can reduce the life and productive values of assets, thereby, undermining their growth benefits.

Notwithstanding these caveats, we concur with Dabla-Norris et al. that the compilation of the PIMI should be seen as a first attempt to amass comparative information of interest, and to undertake PIM diagnostics. Further work could focus on ways to resolve data compilation and comparison issues on other important dimensions of public investment management such as the development of investment proposals among many.

Development of Investment Proposals

In order to get a more comprehensive assessment of the project appraisal and selection processes, we complement the application of the PIMI with a review of the adequacy of the process for the development of investment proposals that were submitted for inclusion in the PSIP. Officials with responsibility for developing investment proposals in the main executing agencies (project development section of ministries), the Planning Unit which has responsibility for preparation of the PSIP, and the Ministry of Public Works which has responsibility for project implementation or its oversight, were surveyed for their assessments. The questionnaire and the codification of the five (5) responses from public officials about the salient components of the guidance document used for the preparation and development of investment proposal submissions are provided in Table 1.^{13, 14} The assessment is presented in the section on project appraisals but is not codified as part of the PIMI index.

Specifically, the questionnaire considers:

- Institutional arrangements for consultation and prioritization of projects;

13 "Guidance Document for the Development of Investment Proposal Submissions". Economic Policy and Planning Unit, Ministry of Finance and the Economy, June 2006.

14 The Head of the Development Planning Unit, the Director and Chief Architect of Public Works and Transport, the Permanent Secretary from the Ministry of Education, the Permanent Secretary from the Ministry of Social Transformation and Human Resource Development and the Senior Projects Officer at the Ministry of Agriculture were surveyed. The official from the Ministry of Health, a key project executing agency, did not respond to the survey request.

- Availability of information and financing to undertake pre-investment work such as sector studies and policy briefs that would inform project proposals;
- Comprehensive identification of costs and sources and project financing needs;
- Identification of risk factors, monitoring indicators, human resource requirements as well as policy, legal, and regulatory factors that could affect project success.

Assessment and PIMI score in Antigua and Barbuda

Strategic guidance and Project Appraisal—the score for the sub-index is 0.5

In 2009, Antigua and Barbuda established a medium term development strategy—the 2010-2014 National Economic and Social Transformation (NEST) Plan (Antigua and Barbuda 2009)—as the vehicle to deal with the adverse socio-economic situation caused by the global financial crises and to place the economy on a long-term sustainable footing. The NEST plan articulated a package of policies, programs, and structural reforms to stimulate economic activity; repair the fiscal and financial health of the economy; and bring relief to the less fortunate members of the society. While it identified potential sources of financing and amounts, it did not provide costs for any of its strategic interventions or identify measures to guide public investment and systematically screen projects. Additionally, it did not indicate how these investments were to impact private investment and identify the absorptive capacity of the public and private sectors. Indicators of the latter are useful to determine which public investment could be readily assimilated, applied, and exploited to use productive resources efficiently and increase productivity (Queensland Treasury 1997; Narula 2003).¹⁵ Moreover, sector development and strategic plans produced by Ministries, Departments and/or Agencies (MDAs) are primarily draft documents that do not include costs and timelines for implementation. These plans are primarily standalone documents that are not integrated with each other to address cross cutting issues, prioritization, and sequencing among projects, or are integrated with medium-term budgets. Many have not been

¹⁵ Absorptive capacity problems during the implementation of projects, such as coordination problems or supply bottlenecks, could result in costs overruns that affect the budget.

approved by Cabinet or Parliament. The NEST plan does not reference any of these strategies.

The Development Planning Unit (DPU), a centralized unit based in the Ministry of Finance, prepares the Public Sector Investment Program (PSIP) after consultation with line ministries. It has established procedures to facilitate the development of project proposals, regardless of the type of funding, and details the process for submission, approval, and inclusion in the PSIP. Since 2006, it has utilized guidelines for the development and submission of project proposals. Procedures for evaluation do not distinguish between the sizes of projects—but reflect a basic approach of providing information to inform decision-makers about the worth and impact of the project (Antigua and Barbuda 2006b). These cover:

- Project description, clear and measurable objectives, description of options;
- Institutional arrangements for consultation and prioritization of projects;
- Availability of information and financing to undertake pre-investment work such as sector studies and policy briefs that would inform project proposals;
- Comprehensive identification of costs and sources and amounts of financing for the project. Costings include recurrent and technical assistance costs over a 3-year period.
- Identification of risk factors, monitoring indicators, human resource requirements as well as policy, legal, and regulatory factors that could affect project success.

The DPU may assist or guide MDAs in formulating project proposals, but this is not a requirement. It reviews and vets project proposals to ensure consistency with the guidelines before submission to the Development Committee for selection.¹⁶ The relative priority of a proposal against other competing proposals for scarce funding is determined by the development of comprehensive justification and a clear understanding of the financial and other implications of all competing proposals (Antigua and Barbuda

¹⁶ The Development Committee comprises the Financial Secretary (Chair), Director, Economic Policy and Planning Unit (Deputy Chair), Director of Budget, Director of Public Works, Accountant General, Chief Establishment Officer, and the Chief Town and Country Planner.

2006). However, project proposals do not need to be supported by standard economic appraisal techniques such as Cost Benefit Analysis (CBA) or, where this cannot be applied because benefits are hard to quantify or monetize or data is unavailable, other appraisal techniques such as Cost-Effectiveness Analysis and or Multi-Criteria Analysis to determine among alternative investment projects with the same objective.¹⁷ At a minimum, the economic evaluation of projects should be commensurate with the scale and scope of the project—with larger projects requiring more rigorous tests of financial and economic feasibility and sustainability. Additionally, formal standards for the conduct of project appraisals do not exist nor is there an independent peer review to check appraisals undertaken by MDAs. Consequently, (i) the tradeoffs between investment projects with the same objective are not based on a comparison of their projected economic and social impact and (ii) projects proposed by MDAs are presumed to be welfare-improving.

We surveyed users about the adequacy of the 2006 guidelines and the process for the development of investment proposals—See Table 1. Users indicated that the framework for project identification is generally adequate. Most ministries or executing agencies submit project proposals through the PSIP process. Specifically:

- The institutional arrangements for the identification, preparation of project proposals, and for consultation with stakeholders, and prioritization of projects before submission for funding, were adequate. Some respondents noted (i) the absence of a national or sector strategic plan to provide strategic guidance and prioritization, and (ii) inadequate capacity for project appraisal and for the preparation of project proposals in MDAs;

There was significant scope for improving the quality and timeliness of vital statistics critical to the design of investment projects and the availability of financing for pre-investment work, such as sector studies and project proposals. These shortcomings adversely affect the comprehen-

17 These alternatives are not necessarily substitutes for each other and are complementary, particularly if economic viability is to be weighed with other policy considerations. The aim of all three techniques is to go beyond financial flows, and to correct for distortions that may be present in markets, so that the viability of a project reflects wider benefits and costs and meets society's needs (EIB 2013).

Table 1: Assessment of Adequacy in Preparation of Project Proposals

	Questions	Responses				
		Y	N	M	S	N
1	Is there either a designated official or a Unit specifically responsible for the identification and preparation of investment project proposals?	Y	N	M	S	N
2	Does the Ministry/Department have access to vital statistics that could be used to inform decision-making on the prioritization and design of investment projects?	F	N	S	H	N
3	Are there any formal structures or arrangements for consulting with stakeholders on the prioritization of investment projects prior to submission for funding?	M	N	M	F	N
4	Does the Ministry/Department have a budget allocation for financing the cost of pre-investment work (e.g. sector studies; policy briefs; project proposals)?	N	Y	S	H	N
5	Do project proposals include clear statements of the objectives and expected outcomes?	Y	Y	Y	F	Y
6	Are risks identified and documented in project proposals? Policy; institutional; implementation.	Y	S	F	H	N
7	Do project proposals include baseline indicators (data on the problem or issue that the project is intended to address) included in project proposals?	M	S	S	F	Y
8	Do project proposals include total costs, recurrent costs and planned annual capital expenditures over a 3-year period?	Y	M	Y	F	M
9	Do project proposals include sources and amounts of financing that comprehensively cover the project costs?	Y	Y	Y	H	M
10	Are the relevant progress monitoring indicators (milestones, delivery schedule) identified and documented in project proposals?	Y	M	Y	M	Y
11	Do monitoring indicators measure progress towards achievement of project deliverables?	M	M	F	F	Y
12	Are complementary policy measures identified and documented in project proposals?	S	F	Y	F	N

Questions	Responses				
	S	N	S	F	F
13 Do project proposals include an assessment of the legal and regulatory requirements for project success?	S	N	S	F	F
14 Do project proposals include information on any additional human resource requirements for the successful operation of completed projects?	Y	Y	Y	F	Y

siveness and timeliness of many project proposals as well as the project selection process.

Answers could be Y = **Yes**, N = **No**, “H = **Hardly**”, if this occurs between 5 and 25 percent of the time, “S = **Sometimes**” if this occurs between 25 percent to 50 percent of the time, or “F = **Frequently**” if this occurs between 51 and 75 percent of the time, and “M = **Mostly**” if this occurs between 75 and 95 percent of the time.

- Estimates of cost and financing requirements for project implementation were generally adequate although there was a tendency to underestimate recurrent costs, particularly those related to maintenance during the project implementation period;
- Project proposals generally had clearly defined objectives, and expected outcomes as well as identified risk factors, complementary policy measures, and human resource requirements for the successful operation of projects. Further work is needed to improve (a) risk and sensitivity analysis and management and (b) the assessment of legal and regulatory requirements that could affect project implementation and improve the means of verification to effectively measure progress and the achievement of project deliverables.

Project Selection and Budgeting—the score for the sub-index is 1.2

The Development Committee reviews project proposals and recommends to the Cabinet those projects that should be included in the investment budget and reflected in the PSIP. All public sector investment should be included in the PSIP, whether funded from the Consolidated Fund or from loans, grants, or long-term lease arrangements.

In the absence of a National Development Plan, the criteria for selection are based on government priorities—employment creation; foreign exchange generation; investment in critical infrastructure, plant and equipment; food safety and security; social programs for poverty alleviation. Project proposals that have been successfully screened, but not included in the recommended investment budget, are also provided to the Cabinet. The latter has responsibility for project selection and the investment budget and, under the guidelines, can substitute screened projects for those recommended for the investment budget. Projects included in the investment budget should be selected on the basis of the maximum net benefit principle—after considering their economic, social, environmental, and financial impact—as this approach results in efficient public expenditures or limits wasteful spending or spending on marginal projects. There are exceptions, like cases in which (i) project selection is based on the availability of external funding, instead of the application of the maximum net benefit principle and (ii) projects that are not screened and identified by the Development Committee are included in the budget.

Information obtained from the Budget Division suggests that projects financed by donor loan resources are complete and are included in the budget. However, while grants may not be a significant source of revenue, some line ministries may consider them off-budget and not report on the financing received, or counterpart financing required, to the DPU ahead of budget preparation.¹⁸ The criteria for project selection in such cases are not documented. This indicates that the PSIP is not used as the sole instrument for translating the government's vision or plan of implementable investment activities through the development budget.¹⁹

18 Projects can be considered off-budget if payments are made directly by donor agencies even if the direct management of project implementation and procurements are made by MDA's. This is not unique to Antigua and Barbuda. The World Bank (2005) notes that, in the OECS, that the incidence of off-budget expenditures is exacerbated by a lack of coordination among donors and inadequate oversight of project preparation by financing agencies. Many of these had been negotiated by the donors with line ministries without the significant involvement of the Ministry of Finance and Planning. They note that some of these projects have questionable priority or impact and overstretches planning ministries' limited capacity to manage these programs.

19 The reference here is to planned investments in a multiyear development and budget framework and not to emergency or contingency expenditures for repairs

Antigua and Barbuda uses a three-year medium term budget framework (MTBF) that translates fiscal objectives or rules into budget policies for the first year, and multi-year forecasts for the remaining period. The forecasts for the outer years of the MTBF do not accurately reflect recurrent expenditures related to ongoing projects or new sector policies, related details on new recurrent and investment expenditures, and the availability of financing. This highlights the need for strengthening the connection between the capital and recurrent components of the budget. The importance of appropriate provisioning for recurrent expenditures is underscored by the need to ensure the adequacy of operations and maintenance of public fixed assets and equipment—ensuring that facilities do not deteriorate beyond normal depreciation. Inadequate maintenance, for example, results in early reconstruction costs often at great additional expense (Hulten 1996; Hood, Husband and Yu 2002).

**Table 2: Supplementary Warrants during 2010 to 2013
(In percent of GDP)**

	2010	2011	2012	2013
Supplementary Warrants	2.7	2.0	1.6	10.6

Source: Antigua and Barbuda authorities and ECCB estimates.

The budget and its components are viewed by the legislature after the budget process. There are instances where the Senate is provided with information on appropriations to fund projects before the budget speech—7 days—but this is an exception rather than the norm. There is a provision under the Antigua and Barbuda Finance Administration Act (2006a) for the use of special warrants to fund capital projects, or to reallocate 25 percent of financing, within the capital expenditure budget. Ideally, the related supplementary estimates should be approved by Parliament within

to infrastructure or procurement of supplies and equipment, for example, following adverse tropical weather systems and natural disasters, for which contingency funds or supplementary appropriations may be required. Addressing significant and permanent shocks will require revisions to the multiyear budget framework and could have implications for the PSIP and investment budget.

the current budget year.²⁰ The 2014 PEFA indicates that this was not practiced during the review period, and consequently, there are variances between budget estimates provided in the Appropriations Act and actual expenditure when (a) budgeted funds are reallocated or (b) new financing is sought for projects.²¹ Thus, budgeting for public investment remains poorly integrated into the formal budget preparation process. In the absence of public appraisal standards and assessments, the level of public scrutiny of projects through the parliamentary process is limited. Further, information on budget execution, contract awards, financial statements, and external audit reports is not always publicly available.

Project Implementation—the score for the sub-index is 0.4

Public procurement in Antigua and Barbuda is guided by the Tenders Board Act (1991) which provides a framework for (i) procurements through contract awards for the supply of articles, disposal of surplus or unserviceable assets, and (ii) for undertaking of works or any services necessary for carrying out the functions of the Government or any such statutory body. The Act does not have a provision to ensure that the Tenders Board reviews all procurements, nor does it specify a preference for open competition over the use of alternatives such as selective tendering or single source, which are also active components of the contract awards mechanism that is practiced. Further, data on the number of contracts awarded on the basis of open competition is not available. Lastly, the absence of benchmark unit prices to facilitate project cost estimation, and for assessing procurement offers, makes it difficult to determine the effectiveness of the procurement process in securing value-for-money in goods, services, or works. The Tenders Board Act does not have a provision for a complaints mechanism, and consequently limits public and legal scrutiny, or checks and balances in the process that ensures equity and fairness.

20 Under Article 30 of the Finance Administration Act 2006, the Minister responsible for Finance has the power, in anticipation of a supplementary appropriation, to issue special warrants up to 25 percent of the original budget (through an accumulation of special warrants) without going to Parliament, so long as these warrants are laid before the House as soon as reasonably possible after the date of the warrant.

21 Supplementary Appropriation Bills for 2001 through 2013 were prepared in the first quarter of 2014 for submission to Parliament.

The authorities are aware of the shortcomings in the Tenders Board Act. In December 2011, the Procurement Administration Act was passed in and gazetted, but it has not been implemented partly because the supporting regulatory framework has not been completed. The Act included provisions for a (i) competitive procurement process (section 4) and (ii) complaints mechanism (section 47 and 48). Institutional and legal reforms of the public procurement systems should achieve cost reductions for the public sector, as well as improve fair and competitive behavior in the private sector.

Similar weaknesses in procurement systems in each of the ECCU countries were discussed at an OECS regional workshop in 2003 (World Bank 2003a and 2005b). Some of the recommendations to address issues of limited capacity and economies of scale at a regional level over the medium term are still relevant:

- A regional program to reform and harmonize procurement systems and facilitate procurements would help to conserve limited technical capacity, allow the countries to benefit from economies of scale, and help to strengthen controls and accountability. The OECS regional Pharmaceutical Procurement Service, and its predecessor, which had been procuring drugs for member countries since 1989 was identified as a model to emulate, once improvements were made to the competitive bidding process and payment mechanisms.²²
- Developing and coordinating the implementation of a regional capacity building agenda at the OECS Secretariat aimed at creating a cadre of regional qualified procurement professionals.
- Opening local bidding to the sub-regional market will help to prevent capture by local firms.
- Introducing a system of peer review by the OECS Secretariat and donor agencies may help to provide better oversight and supplement local capacity.

Expenditure on project execution, during 2010 to 2013, averaged 1.3 percent of GDP which was less than 50 percent of the funds authorized for expenditure under the Appropriations Act, primarily reflecting shortfalls in domestic revenue rather than

²² This could also be extended to regional arrangements to handle procurements needs for emergency response.

inadequate implementation capacity. The unpredictability and unreliability of cash flows undermined project planning, commitment, and implementation. More than half of project implementation in the latter part of 2013 includes projects financed by special warrants, for which debt financing was obtained or the development budget reallocated.²³

In contrast, capital expenditure averaged 7.5 percent of GDP during the previous three years (2006 to 2009) and, on average, exceeded the amounts in the budget by 24 percent.²⁴ Further analysis could usefully determine the earned value—measuring project performance and progress against the projects scope, schedule, and costs.²⁵ And, the reason for the additional financing for projects included in the development budget—higher than expected costs per unit; changes in project design, scope, or scale; the realization of contingencies, etc.—would have improved transparency and monitoring. Also of use, is an assessment of whether the revenue optimism bias was acknowledged, such that ongoing projects received priority over new projects and new projects did not commence until adequate financing was secured.

The capacity for project monitoring and management in executing agencies needs to be strengthened. Many executing agencies did not have planning and monitoring units, or designated senior project managers, to develop project proposals and to monitor and ensure implementation in accordance with plans. While standardized procedures and guidelines for project adjustments—requiring the review and reappraisal of a project's rationale, costs, and expected outputs—are available from the DPU, these are not legally binding and are not undertaken. Additionally,

23 Many projects financed by special warrants are not reviewed by the DPU and screened by the Development Committee.

24 Recourse to debt financing typically used for capital expenditure during 2006 to 2009, was restricted in the subsequent period under the Stand By Arrangement (June 2010 to June 2013) with the IMF, because of debt sustainability concerns.

25 Example: Project A has been approved for a duration of 1 year with a budget of X. It was also planned, that the project spends 50% of the approved budget in the first 6 months. This will need to be assessed against actual outcomes 6 months after the start of the project. A report that 50% of the budget is spent after 6 months does not mean that the project implementation is in accordance with plans. The project is underperforming if less than 50% of the work is satisfactorily completed when 50% of the budget is spent. Conversely, the project is doing better than planned if more than 50% of the work is satisfactorily completed when 50% of the budget is spent.

the DPU, because of capacity constraints, was unable to perform an “earned value” management function—comparing progress on all projects relative to their implementation plans.

**Table 3: Selected Budget and Outcomes of Revenue and Expenditure
(In Percent of GDP)**

	2010		2011		2012		2013	
	Budget	Out- come	Budget	Out- come	Budget	Out- come	Budget	Out come
Revenue & Grants	27.3	22.5	22.1	20.4	22.6	19.8	23.4	18.9
Capital Expenditure	2.9	2.1	2.1	1.3	2.3	0.6	3.5	1.3

Source: Antigua and Barbuda authorities and ECCB estimates.

The internal audit function in Antigua and Barbuda is at a nascent stage. There is no specific internal audit mandate, charter, or audit manual.²⁶ The internal auditor did not perform project implementation audits during the 2010 to 2014 period. Consequently, this limits the ability to enforce financial accountability—reinforce efficiency, reduce corruption, and correct expenditure deviations—through appropriate systems for financial and contract management as well as oversight (World Bank 2005b).²⁷

The weaknesses in the internal audit function should be addressed in the short term. A medium term consideration would be to establish a regional internal audit body to collaborate with Directors of Audit in each country which would, inter alia (World Bank 2003):

- Better develop and utilize technical expertise that is often not available to countries because they are costly—such as computer assisted audit techniques and value for money audits.

26 Discussion with the Internal Auditor in June, 2015.

27 The World Bank (2005) notes that in the OECS (i) poor contract management for a large number of projects in which actual expenditure varied from that contracted but where standard procedures were not followed to clarify or correct them and (ii) lack of oversight of ongoing works by ministries due to a shortage of qualified staff, contributed to the high costs of public investment outputs.

- Provide greater independence particularly in politically sensitive areas—this is possible if a model like that used for the OECS Supreme Court or ECCB is followed.
- Provide support to common national audit issues.

Article 4 of the Revised Treaty of Basseterre, that establishes the OECS Economic Union, provides for a regional approach to the internal audit function.

Project and Asset Register Audits, and Ex Post Evaluation—the score for this sub-index is zero

Regular project audits and ex-post evaluations of projects—such as comprehensive quarterly and annual reviews of the performance of all approved projects, including identifying potential and actual cost over runs, delays, and reallocations between projects—have not been undertaken at any of the Ministries we surveyed or by the External Audit Office.²⁸ Thus opportunities have been missed to: (i) revalidate the feasibility of projects with regard to relevance, efficiency, and effectiveness and (ii) provide learning and feedback from project implementation that could create a positive dynamic for improvement over time.

Asset registers on the stock, value, and condition of fixed or non-financial public assets—useful in facilitating physical asset planning and management, and assessing the costs of addressing a country's infrastructure needs—are, in general, neither regularly maintained nor include valuations. The Ministry of Public Works maintains an asset register of (i) heavy duty equipment and their estimated values, but does not update these annually; (ii) government buildings—location and size—but that did not indicate their values or physical condition. There was no information on road networks or other physical infrastructure.²⁹ The Ministry of Agriculture, Lands, Marine Resources and Agro Industries, maintains a register of government lands, but the register does not include land valuations.

28 In the last three years the latter has focused on clearing a backlog of financial reports to Parliament from 2002 to 2007 and, at the time of the survey, was preparing financial reports for the period 2008 to 2010.

29 The 1956 Financial Regulations had provisions for a register of stores and inventories but these provisions were excluded from the Finance Administration Act (2006a).

Addressing the shortcoming in the quantification of the stock and quality of physical capital will have the benefit of providing data that is useful for assessing (i) public investment productivity – capturing the effect of investment spending on growth by estimating the returns to public sector capital—and (ii) the efficiency of public investment—the relationship between the value of the public capital stock and the measured coverage and quality of infrastructure assets.

Assessing the PIMI and Recommendations

The potential range of scores in the PIMI is 0 to 4. Antigua and Barbuda's overall PIMI of 0.53 and individual sub-index scores are low, and place it in the bottom quartile of scores. Table 4 below compares Antigua and Barbuda's scores to (i) four Commonwealth Caribbean countries, with which it shares a common geographic location, heritage, culture, and public administration framework, and (ii) four other small and micro states, primarily in the Asia Pacific and African regions with which it shares the characteristics of smallness, that were assessed by Dabla-Norris et al. 2012.³⁰ We note that the median score for small states are less than one, which suggests that the eight small states are, on average, weak performers among the 71 countries assessed. This, however, does not indicate a causal relationship between size and the efficiency of PIM.

Antigua and Barbuda's sub index scores for *project selection and implementation* are also consistent with the scores that the country obtained in the 2014 PEFA, undertaken following the 3-year implementation of PFM reforms and to assess progress since the 2010 PEFA. The variation in the sub-indices among the countries identified in Table 4 is significant.

- *Project Appraisal*. The *appraisal* sub-index score in Antigua and Barbuda, and most of the other countries, is the lowest and has

30 The small states are defined as states with populations less than 1.5 million consistent with the definition used to define small states in the influential Joint Task Force Report on Small States of the Commonwealth Secretariat and World Bank 2000. While micro states are a sub-group with populations below 200,000, as of 2011, Sao Tome and Principe is the only other microstate in the list besides Antigua and Barbuda. The Commonwealth Secretariat includes Jamaica, Lesotho, Namibia, and Papua New Guinea in its definition of small states because they share similar characteristics.

the smallest variation. This suggests that there is generally significant area of weakness in country capacity for strategic planning and appraisal of public investment proposals to ensure that projects are selected based on credible estimates of their costs and benefits. Jamaica stands out with a country above that of the median country.

- *Project Selection.* Antigua and Barbuda's *selection* sub index score is lower than most of the other countries, despite being the highest score among the four sub indices. The scores of Barbados, Jamaica, and Trinidad and Tobago (each with scores of at least 2 that are higher than the median of the 71 countries) suggest that weaknesses in the quality of its budget institutions, particularly regarding medium-term budget frameworks, the unification of current and capital budgets, and the consolidation of extra-budgetary funds, will limit the effective allocation of investment.
- *Project Implementation.* The *implementation* sub-index score for Antigua and Barbuda is lower than the other countries and emphasizes its shortcomings in expenditure controls, project execution and reporting, procurement, and project management. These components are critical to ensuring that investment projects are delivered on time and on budget. The scores for Commonwealth Caribbean countries are below the median for all countries.
- *Project Evaluation.* Finally, the *evaluation* sub index score for Antigua and Barbuda is lower than the other countries. Like with Belize and Swaziland, this shows significant weakness in value-for-money audits and asset registration that account for the stock and quality of assets and are useful for fiscal monitoring and investment planning purposes.

The 2014 PEFA scores indicate that PFM systems in the country remained weak—budget credibility is limited, control over spending is not effective, accounting, and financial reporting are not reliable, compliance with financial rules is weak, and external scrutiny via audit and parliamentary systems is poor—and were marginally improved over 2010.

Table 4: Public Investment Management Index (PIMI) for Selected Caribbean and Island Countries¹

Country	Appraisal	Selection	Implementation	Evaluation	All
Antigua & Barbuda ⁴	0.05	1.20	0.04	0.00	0.53
Barbados ⁴	0.50	2.00	0.93	1.33	1.19
Belize	0.00	0.80	0.27	0.00	0.27
Jamaica	1.83	2.40	1.33	1.33	1.72
Trinidad & Tobago ⁴	0.00	2.40	1.33	0.67	1.10
Sao Tome and Principe	0.00	0.80	1.47	1.33	0.90
Solomon Islands	0.00	2.00	0.40	0.67	0.77
Swaziland	1.33	1.60	1.07	0.33	1.08
Montenegro ⁴	0.83	1.60	2.80	1.33	1.72
South Africa²	4.00	4.00	2.80	3.33	3.53
<i>Median Caribbean Country³</i>	<i>0.05</i>	<i>2.00</i>	<i>0.93</i>	<i>0.67</i>	<i>1.10</i>
<i>Standard Deviation</i>	<i>0.24</i>	<i>0.73</i>	<i>0.59</i>	<i>0.64</i>	<i>0.44</i>
<i>Median Small State³</i>	<i>0.03</i>	<i>1.60</i>	<i>1.00</i>	<i>0.67</i>	<i>0.99</i>
<i>Standard Deviation</i>	<i>0.51</i>	<i>0.58</i>	<i>0.88</i>	<i>0.57</i>	<i>0.44</i>
<i>Median Country in PIMI Study³</i>	<i>1.33</i>	<i>1.60</i>	<i>2.00</i>	<i>1.33</i>	<i>1.65</i>

1. Data from countries other than Antigua and Barbuda were obtained from Dabla-Norris et al. (2012)

2. South Africa has the highest overall PIMI score and is included as a benchmark country.

3. The median scores reflect the median scores of Caribbean countries; small states, and the 71 countries (40 middle income and 31 low income countries) covered in the Dabla-Norris et al. 2012 study.

4. Represents Upper Middle Income Countries

While not extensive, the country comparisons indicate that Antigua and Barbuda's PIMI scores are low compared to Barbados, Jamaica, and Trinidad and Tobago (all in the second quartile) and suggest that contributory factors, beyond a common geographic location, heritage, culture, and public administration framework, affect its PIM strength. Similarly, its scores are low in comparison to the other small countries, particularly Swaziland and Montenegro (also in the second quartile). Sao Tome and Principe, the only other microstate, has a marginally better score but, like Antigua and Barbuda, is in the bottom quartile. Lastly, Montenegro and Sao Tome and Principe, both identified as fragile states, have higher PIMI scores than Antigua and Barbuda.³¹ It would be interesting to see how countries in the ECCU (microstates that share a currency union with Antigua and Barbuda), as well as those in the Asia Pacific and Africa region, compare, and to understand how the relative strengths in PIM affect their growth.

The significant variation among Antigua and Barbuda's PIMI sub-indices usefully identifies areas for institutional reform and capacity building to improve investment productivity and efficiency (Appendix I and Appendix II). The literature notes the difficulty of prescribing priorities and sequencing of reforms in the different stages of the public investment process without the benefit of quality data—on each component—to assess the productivity of public capital on growth. Gupta et al. (2014), using the PIMI, observed that the *appraisal* and *evaluation* stages of PIM generally have a disproportionately higher weight in explaining the effect of public capital on growth in middle income countries, while *implementation* and *selection* are relatively more important in low income countries. The results for the entire sample are mixed, but *implementation* is the stage with the highest relative public investment productivity. This variation across the country groups indicate that policy recommendations should be tailored to country circumstances (Gupta et al. 2014; Dabla-Norris et al. 2012). This would also be true for Antigua and Barbuda. Consequently, we recommend the following broad areas for institutional reform and capacity building to improve PIM in Antigua and Barbuda. These

31 Fragility is based on the World Bank definition of (a) an average Country Policy and Institutional Assessment (CPIA) rating of 3.2 or less, or (b) a UN and/or regional peace-building mission within the country within the last three years.

are not stand alone reforms, and should be integrated within broader reforms of PFM that aim to improve fiscal discipline, effective allocation, and operational efficiency. Chances of success can also be improved with executive commitment to the paradigm shift, effective monitoring of reform implementation, and retraining efforts for capacity development that are accompanied by change management processes within the civil service. Where possible, regional initiatives to harness economies of scale, address limited capacity, and improve governance and accountability should be included. The recommendations follow the investment cycle and do not reflect priorities or sequencing:

- **Formulate long-term national development plans and medium term strategic frameworks** that serve as the core document for policy alignment, and create a basis for making choices on the best use of limited resources, identify specific needs—programs and projects—to be financed and implemented that are costed, and the results monitored and evaluated against national goals. South Africa’s National Development Plan “Vision 2030” is perhaps a good example. It is framed within rolling 5-year Medium Term Strategic Frameworks that set the overall and broad sectoral ceilings for development expenditures and identifies indicators and targets to be achieved, which are, in turn, integrated in rolling Medium Term Fiscal Frameworks and budgets.
- **Establish and implement a legal framework for the PSIP process.** This law should determine rules, regulations and measures regarding management of public investments in terms of formulation, endorsement, execution, and monitoring of public sector investment programs and projects. The legal framework will need to be supported by adequate staffing and capacity development in: (i) the production of PSIP manuals and handbooks, (ii) the provision of training to government officers, and, (iii) the development of a PSIP Management Information System. Selection criteria for public investment projects (including those of statutory agencies or private corporations financed through government guaranteed loans) should be established independently of their source of financing for inclusion in the capital expenditure budget and the PSIP. Project prioritization should be based on some type of cost-benefit analysis, with projects above a threshold (say EC\$1 million) subject to a formal cost-benefit analysis before

being included in the capital expenditure budget. In making this recommendation, we acknowledge the inherent risk of automatic acceptance of projects with low initial capital costs and very high operating and life cycle costs like, for example, low technology solutions in the agriculture sector with very labor intensive operating requirements, which could constrain fiscal space over the long term. An alternative approach could be to determine formal appraisal thresholds by reference to a matrix of critical factors like capital cost, environmental impact, safety, location, and human resource requirements in the operations phase. Another approach could be the use of a tiered review process with all projects being subjected to a simplified, but effective, screening process and the requirement for a formal appraisal being based on the scope and complexity of unanswered questions at the end of that initial process. At any rate, the basic principle should be that all projects, regardless of their capital cost requirements, should be subjected to a formal screening process, at which a decision is made on the feasibility of further technical and economic investigation. Life cycle costs, strategic alignment, potential impact, and time available could be some of the decision-making criteria that could be incorporated into the preliminary screening process.

- **Strengthen the link between the PSIP and the medium term budgetary framework.** This will ensure that budget ceilings are binding on investment choices and are consistent with national development plans and priorities. The budget, including supplementary appropriations, should only finance projects that have been thoroughly screened and selectively prioritized toward growth supporting interventions through the PSIP process. Additionally, the PSIP should be used as the means through which public investment activity is able to secure off-budget financing. This ensures that the PSIP is maintained as a valuable instrument to track projects and programs identified in the national development plan.
- **Strengthen and enforce Public Financial Management (PFM) practices.** The PFM legal framework should facilitate a more comprehensive budget framework that has transparency and accountability requirements for the appropriation of funds, financial reporting, and audits to improve compliance with rules and procedures. Institutionalizing intra-agency coordination mechanisms and capacity building should (i)

improve the robustness and linkage of budgeting, project implementation and evaluation, and facilitate proper asset management and (ii) assist in minimizing major risks and provide an effective process for managing public investments. This should improve the likelihood that the public investment process provides more cogent decision-making and the right investments at the right price and at the right time.

- **Strengthen and implement the legal and policy framework for procurement**, particularly to encourage competitive bidding and secure value-for-money in goods, services, or works. The legal framework should have provision for a complaints mechanism and encourage a process of public and legal scrutiny to ensure equity and fairness. We also support the recommendation from the World Bank (World Bank 2003) that consideration be given to a sub-regional program to reform and harmonize procurement systems that would help conserve limited technical capacity and strengthen controls and accountability.
- **Strengthen capacity and provide adequate resources for the implementation of processes and controls that are likely to yield efficient public investment decisions.** While there are shortcomings in capacity across the four (4) stages of the public investment process, anecdotal evidence from survey respondents suggest that improving the capacity for project selection and implementation are relatively more important for improving public investment management and growth outcomes. Notwithstanding the PIM technical capacity issues, there is a broader issue of capacity that needs to be addressed in the public service to improve performance and productivity—that of change management systems to attract, motivate, empower, and retain employees with the necessary expertise as part of capacity building programs. The proactive commitment and discipline of the political leadership to champion the reforms would enhance their effectiveness.

These institutional and legal reforms, as well as the strengthening of technical capacities, will take time to be developed and implemented and their impact on public investment productivity and efficiency likely to be realized in the medium to long term. Over time, the index could be used to evaluate ongoing efforts at improving the investment environment in the country.

CONCLUSIONS

The steady decline in public investment and slow economic growth has led to increased calls to scale up public investment, particularly removing infrastructure bottlenecks, to raise economic growth. Improving the role and quality of allocative decision making systems, as well as the efficacy of public investment management (PIM) systems, should be key components to achieve growth while reducing investment financing needs.

The PIMI facilitates the assessment of the investment process in Antigua and Barbuda and identifies the institutional features that minimize major risks and provide an effective process for managing public investments. It is also useful for undertaking diagnostics of the institutional framework for the investment cycle (appraisal, selection, implementation, physical asset management and evaluation) and could complement more in depth diagnostics. Over time, diagnostic tools like the PIMI could be used to evaluate ongoing efforts at improving the investment environment in the country.

The overall PIMI for Antigua and Barbuda is extremely low and reflects the poor public investment management processes. This suggests that there is substantial scope for strengthening PIM to improve the quality and efficiency of public investment, so that higher growth dividends from public investment can be achieved.

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Appendix 1. Dimensions, Scoring Methodology and Sources of Data ^{1/}				
No.	Questions	Dimension	Score	Definition/Score Methodology
1a. Strategic Guidance				
1	Are sector strategies prepared, including estimates of their costs, to guide identification of public investment projects?	Costed Sector Strategies	0	The score is 0 if there is no broad strategic guidance for public investment decisions OR sector strategies are not prepared; 1,33 if there is strategic guidance (PIP, PRSP, national development plan) AND sector strategies exist in several major sectors but are not costed; 2,67 if there is strategic guidance and partially costed sector strategies are prepared for major sectors and 4 if there is a well-defined public investment plan AND/OR sector strategies exist for most sectors with full costing of recurrent expenditures and investment.
1b. Project Appraisal				
2	Is there a published document which details appraisal standards?	Appraisal Standards	0	The score is 0 if there is no published document; and 4 if there is a published document which details appraisal standards.
3	Are economic appraisals (or cost/benefit analysis) routinely undertaken, at least for large projects?	Economic Appraisals	0	The score is 0 if there are no economic appraisals; 2 if economic appraisals are undertaken for large projects, but not uniformly; and 4 if economic appraisals are routinely undertaken for large projects. Survey and interview
4	Is there an independent check or regulator of appraisals to ensure objectivity and quality of appraisals?	Independent Check	0	The score is 0 if there are no checks; 2 if there are checks, but coverage is compromised; and 4 if there are independent checks done by a regulator or office of appraisals.
2a. Project Selection: Integration with Budget				
5	Is there a medium-term planning and budgeting framework; is this framework integrated with the annual budget?	Medium-Term Planning and Integration	2	The score is 0 if the government does not prepare multi-year forecasts of fiscal aggregates; 2 if there are multi-year forecasts but there are no links with annual budget ceilings; and 4 if there are multi-year forecasts and the subsequent setting of annual budget ceilings is clear and differences are explained.
6	Are donor financed projects included in the budget?	Inclusion of information on donor-funded projects	2	The score is 0 if information on donor-financed projects is not included in the budget or information is seriously deficient; 2 if partial information is included; and 4 if detailed information for a large share of donor-funded projects is included.

Appendix I. Dimensions, Scoring, Methodology, and Sources of Data (concluded)

No.	Questions	Dimension	Score	Definition/Score Methodology	Sources
7	Are investments selected on the basis of relevant sector strategies and recurrent cost implications?	Investment Selection	0	The score is 0 if budgeting for investment and recurrent expenditure are separate processes with no recurrent cost estimates being shared; 2 if many investment decisions have poorly defined links to sector strategies and their recurrent cost implications are included in forward budget estimates only in a few (but major) cases; and 4 if investments are consistently selected on the basis of relevant sector strategies and recurrent cost implications in accordance with sector allocations and included in forward budget estimates for the sector.	(a) 2014 – PEFA P-12iii and iv (b) 2014 – PMI Survey and interview
2b. Project Selection: Role of the Legislature					
8	What is the scope of legislative scrutiny prior to voting on appropriations to fund projects?	Scope of the Legislature's Scrutiny	2	The score is 0 if the legislature's review is non-existent or extremely limited, or there is no functioning legislature; 2 if the legislature's review covers fiscal policies and aggregates for the coming year as well as detailed estimates of capital and recurrent expenditure; and 4 if the legislature's review covers fiscal policies, medium term fiscal framework and medium term priorities as well as details of expenditure.	2014 – PEFA P-27
2c. Project Selection: Public Scrutiny					
9	Does the government provide public access to key fiscal information?	Public Access to Key Fiscal Information	0	The score is 0 if information on key fiscal aggregates, external audit reports, and contract awards is not publicly available; 2 if information on key fiscal aggregates but not external audit reports and contract awards is publicly available; and 4 if information on all three is publicly available.	2014 – PEFA P-40
3a. Project Implementation: Procurement					
10	Is there open competition for award of contracts?	Open Competition for Award of Contracts	0	The score is 0 if there is insufficient data exists to assess the method used to award public contracts or the available data indicates that use of open competition is limited; 2 if less than 75% of contracts above the threshold are awarded on basis of open competition, but the data may not be accurate; and 4 if accurate data on the method used to award public contracts exists and shows that more than 75% of contracts above the threshold are awarded on the basis of open competition.	a) 2014 – PEFA P- 19j (b) 2014 – PMI Survey and interview
11	Is there existence and operation of a procurement complaints mechanism?	Complaints Mechanism	0	The score is 0 if no process is defined to enable submitting and addressing complaints regarding the implementation of the procurement process; 2 if a process exists for submitting and addressing procurement complaints, but it is designed, poorly and does not operate in a manner that provides for timely resolution of complaints; and 4 if a process (defined by legislation) for timely resolution of procurement process complaints is operative and subject to oversight of an external body with data on resolution of complaints accessible to public scrutiny.	a) 2014 – PEFA P- 19hi (b) 2014 – PMI Survey and interview

Appendix I. Dimensions, Scoring Methodology, and Sources of Data (concluded)				
No.	Questions	Dimension	Score	Definition/Score Methodology
3b. Project Implementation: Timeliness				
12	During the past three years, has there been chronic under-execution of capital budgets?	Capital Budget Execution	0	The score is 0 if less than 50% of the capital budget has been spent; 1.33 if 50-70% of the capital budget has been spent; 2.67 if 70-90% of the capital budget has been spent; and 4 if more than 90% of the capital budget has been spent.
3c. Project Implementation: Internal controls and audits				
13	Are there effective internal controls, including controls on expenditure commitments?	Existence and effectiveness of internal controls	2	The score is 0 if commitment control systems are generally lacking or routinely violated; 2 if such controls exist, but do not cover all expenditures, or are occasionally violated; and 4 if comprehensive expenditure commitment controls are in place and compliance with rules is high.
14	Is there an effective system of internal audit?	Internal audit	0	The score is 0 if there is no internal audit system; 2 if internal audits are functional for some entities and partially meet recognized international standards; and 4 if internal audits exist for all entities and generally meet international standards.
4. Project Evaluation, Audit and Asset Management				
15	Is ex-post evaluation of domestic projects routinely undertaken?	Evaluation Frequency	0	The score is 0 if ex-post evaluations or spending reviews are not routinely undertaken; 2 if there are post-completion spending reviews; and 4 if ex-post evaluations are routinely performed by the auditor general or the executive, and cover costs and benefits.
16	Are external audits produced on a timely basis and scrutinized by the legislature?	External audit	0	The score is 0 if audits cover less than 50 percent of total central government expenditures, including capital investments; 2 if at least 50 percent or more of total central government expenditures are audited annually, including capital investments; and 4 if all expenditures, including capital investments, are audited and the full range of financial audits is in compliance with auditing standards.
17	Does the government maintain an asset register or inventory of public sector property, equipment, vehicles, etc.?	Asset Register	0	The score is 0 if no there is no asset register; 2 if one exists but it is incomplete; and 4 if there is a complete and operational asset register.
End				

Appendix II: Public Investment Management Index for Selected Countries ¹

Number of Effective Decisions	Approval			Selection			Implementation			Evaluation	
	Project Approval			Project Selection			Project Implementation			Project Evaluation, Audit and Asset Management	
	1	2	3	Project Selection: Integration with Budget	Project Selection: Role of the Legislature	Project Selection: Public Scrutiny	Project Implementation: Resource Allocation	Project Implementation: Timeliness	Project Implementation: Internal controls and audits	Project Evaluation: Frequency	Project Evaluation: Asset Regular
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Anguilla & Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bermuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad & Tobago	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
San Tome and Principe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monrovia	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1. Data for Barbados, Belize, Haiti, Jamaica, South Africa, and Trinidad & Tobago were obtained from Era Dabla-Norris, Jim Brumby, Annette Kyobe, Zac Mills, Chris Papageorgiou (2012). "Investing in Public Investment: An Index of Public Investment Efficiency."

Mots-clés: Accessibilité du logement; qualité de vie; coût de la vie, biens publics locaux

Medir la Eficiencia de Sistemas de Gestión de Inversiones del Sector Público – El Caso de Antigua y Barbuda

Wayne Mitchell y Michael Baptiste

El contexto institucional en donde se toman las decisiones sobre la inversión pública y la calidad de selección de proyectos, gestión y ejecución, determinan el rendimiento de las inversiones. Esta nota utiliza una metodología establecida por Dabla-Norris et al (2012) para examinar y desarrollar un índice de gestión de la inversión pública para Antigua y Barbuda y ofrece recomendaciones para mejorar la eficiencia de la gestión de inversión pública.

Palabras clave: Instituciones y Crecimiento, Evaluación de Proyectos, Infraestructura, Presupuestos

Comment Mesurer l'efficacité des Systèmes de Gestion des Investissements dans le Secteur Public—Le cas d'Antigua-et-Barbuda

Le contexte institutionnel dans lequel les décisions d'investissement public sont entreprises et la qualité de la sélection, de la gestion et de la mise en œuvre des projets déterminent le retour sur investissement. Cette note utilise une méthodologie établie par Dabla-Norris et al. (2012) pour examiner et développer un indice de la gestion des investissements publics d'Antigua-et-Barbuda et fournit des recommandations pour améliorer l'efficacité de la gestion des investissements publics.

Mots-clés: Institutions et croissance, Évaluation de projet, Infraestructure, Budgets

Medir la Evolución de la Ventaja Comparativa Revelada en una Pequeña Economía basada en Hidrocarburos utilizando el Harmonic Mass Index (Índice de Masa Armónica)

Damie Sinanan, Roger Hosein, Franklin Martin

En los últimos 10 años Trinidad y Tobago ha visto un cambio en su estructura comercial debido a las exportaciones crecientes de energía y la inversión extranjera en el sector energético. Este artículo examina cómo los cambios en la estructura comercial de la economía de Trinidad y Tobago han impactado su ventaja comparativa revelada. Esto se hará mediante la comparación de las distribuciones de la estructura de la ventaja

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