Implementation of Public Investment Systems

Submitted by: Universidad de Chile

Best Practices Workshop on Public Investment Systems
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Implementation of Public Investment Systems

Eduardo Contreras

Best Practices on Public Investment Systems (EC 08 2018A)

Implementation of Public Investment Systems

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University of Chile - Professor

Puerto Varas, August 2019

Note: This presentation includes some materials from previous presentations developed with José Larios, Edna Armendariz and Martin Ardanaz (IADB), as well as from the thesis of Antonio Rojas

Contents

1.-Introduction:
Context - Economic growth slowdown

Real GDP growth
(%)

Legend:
- 2003-08
- 2009-15
- 2016-20

Categories: Advanced Economies, Emerging Economies, ASEAN 5, Sub Saharan Africa, Latin America and the Caribbean
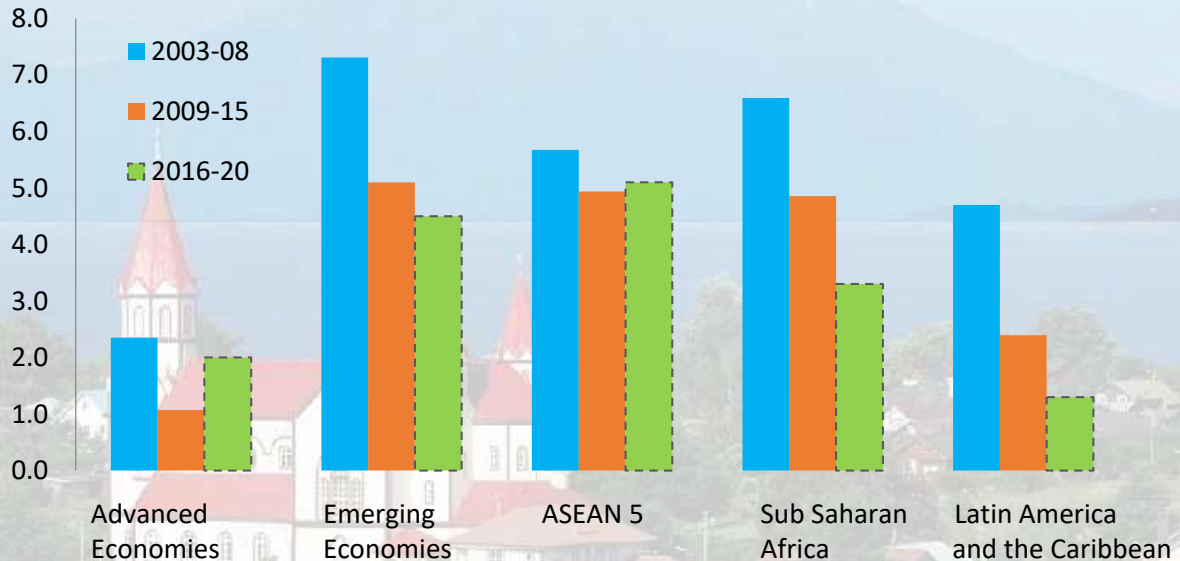
1.-Introduction: Growth models

$Y = F (K, L, A)$

Y: Product

K: Capital factor

L: Labor factor

A: Total factor productivity

How does Public Investment contribute to growth?

It is part of the total investment (K)

But especially in the TFP:

Boosting private investment

Complementing with public investment those from the private sector that are not privately profitable: Crowding In versus Crowding Out Effect
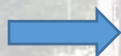
Selecting public projects well.

1.-Introduction:
Positive relationship between growth of public investment and GDP

Latin America: real growth of public investment and GDP
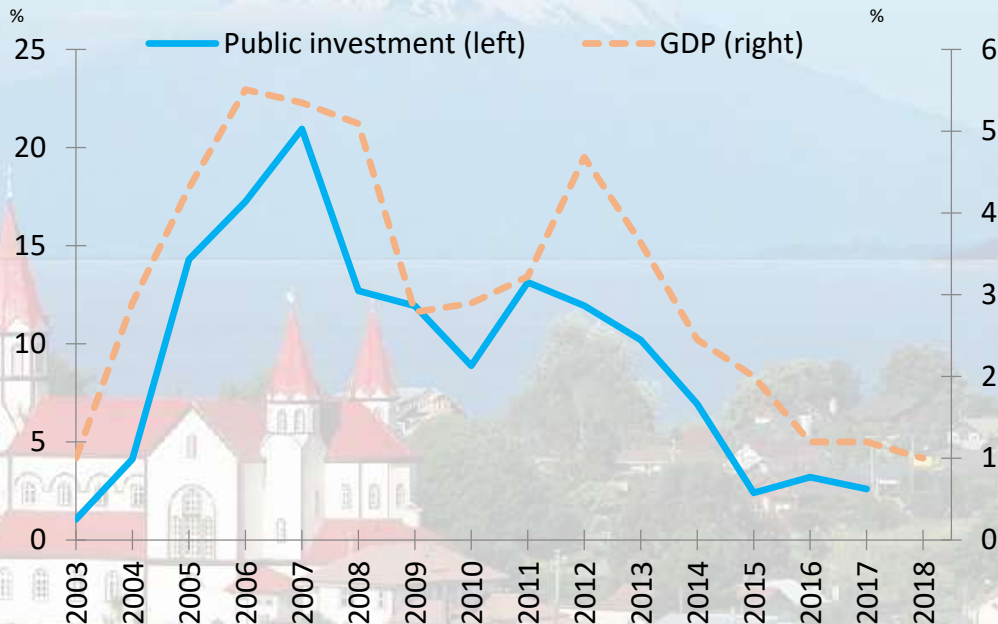
Source: Armendariz, Contreras calculations based on IDB and WEO data

1.-Introduction:
Positive relationship between growth of public investment and GDP(Latin America)

Relationship between economic growth and public investment growth in Latin America, 2009-2016
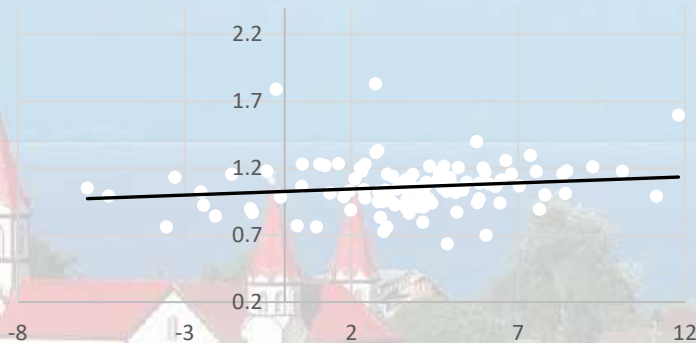
Source: Antonio Rojas with IMF data, 16 economies, years 2009 and 2015

1.-Introduction:

Literature presents mixed evidence, results mainly show that public investment correlates positively in growth, although not always significantly.

Hypothesis: efficiency in investment management (part of the Total Factor Productivity) may be making a difference in how public investment impacts GDP.

1.-Introduction: The efficiency hypothesis ...

- Mixed evidence in the literature, not in 100% of cases and not always with statistical significance

- On the other hand, what is the causality?
- Investment => Growth?
- Growth => Investment?

- Most of the studies in the reviewed literature study correlation, but not cause-effect relationships.

1.-Introduction: Questions about gaps

How much is invested?

What are we investing in?

How efficient is investment management?

2.-Gaps: How much is invested?

Figure X.1 Public Investment in LAC and ROW, % of GDP, 200–10
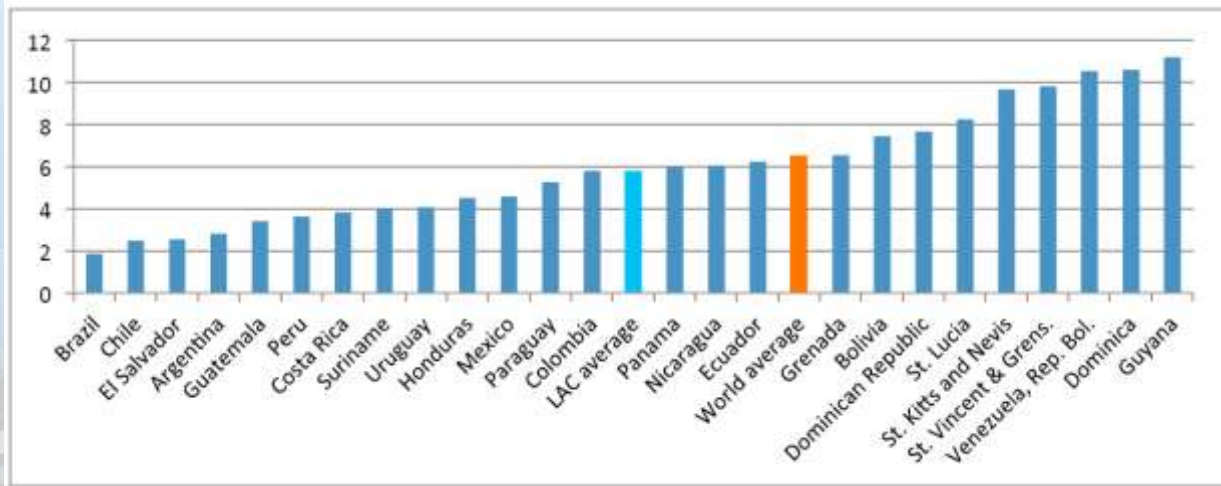
Source: Jonas Franf, 2013, World Bank.. Public Investment Management in Latin America and the Caribbean: institutions under evolution.

2.-Gaps: How much is invested?

Public investment expenditure, 2000-17 *
(percentage of GDP)

ASEAN
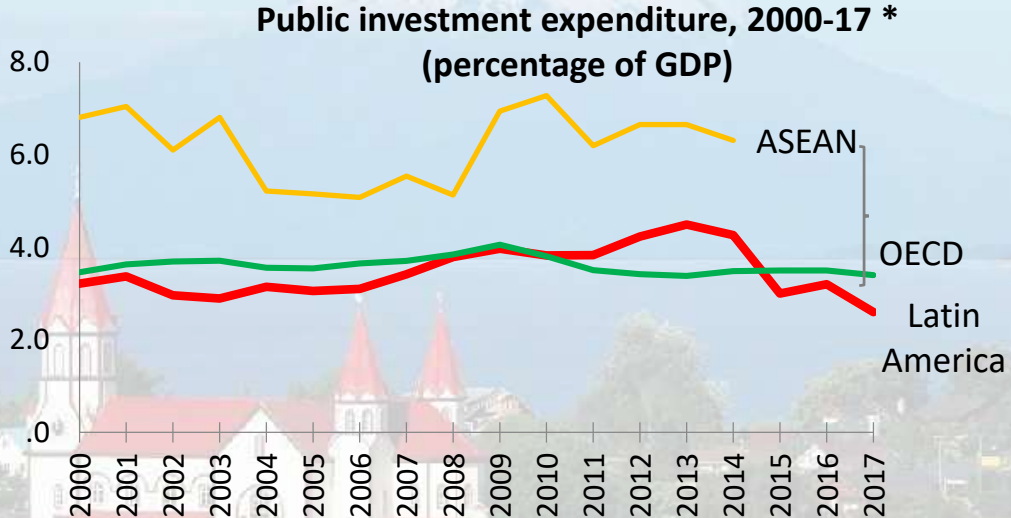
OECD

Latin America

Source: IADB calculations based on IADB, OECD and WEO data.* 2014 for ASEAN economies.
** Latin America includes: Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, México, Nicaragua, Panamá, Paraguay, Perú, República Dominicana and Uruguay.

2.-Gaps: How much is invested?

Latin America: Public investment expenditure, 2000-2014(% GDP)
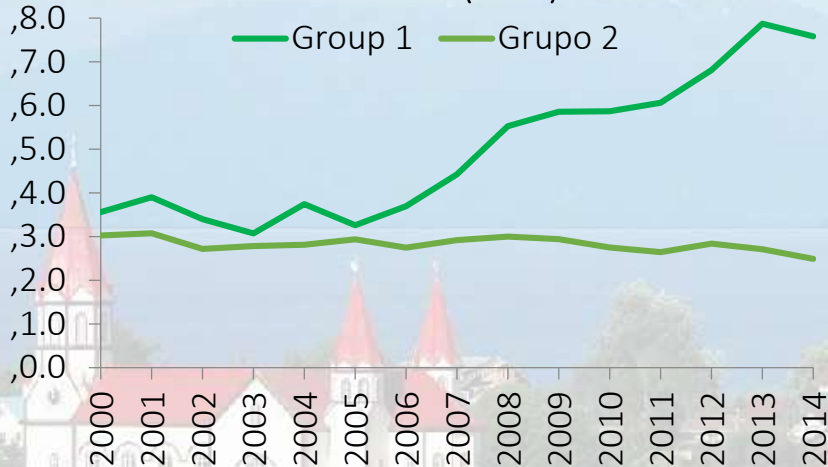
Source: IADB calculations based on IADB data.
Group 1: Bolivia, Colombia, Ecuador, Panamá y Perú
Group 2:Chile, Costa Rica, , El Salvador, Guatemala, Honduras, México, Nicaragua, , Paraguay, República Dominicana y Uruguay

2.-Gaps: What are we investing in? (Latin America)

Category	%
Transport	26
Social housing	19
Education	10
Health	7
Public services	6
Energy	6
Social protection	5
Water	4
Police	3
Agro	3
Defense	2
Environment	1
Culture	1
Otras Act. Econ. 3/	11
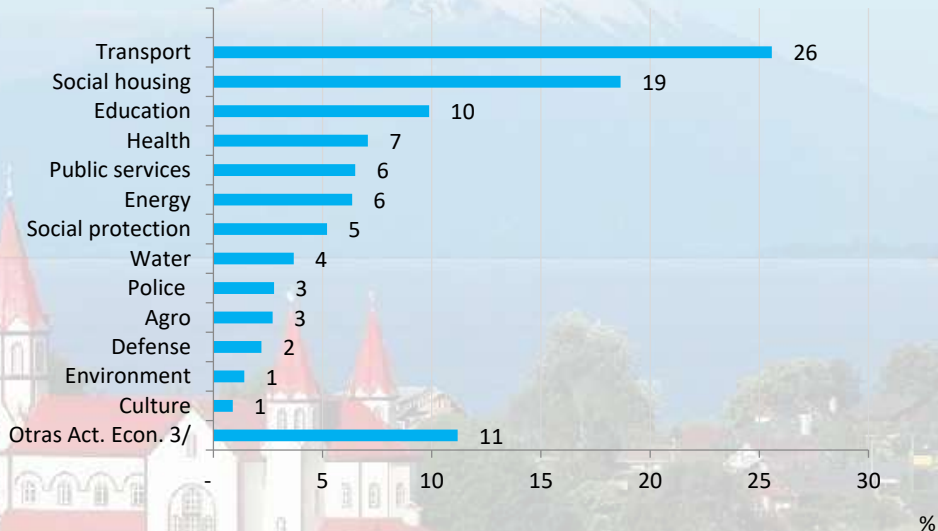
Source: IADB calculations based on IADB data.

2.-Gaps: What are we investing in?

Perú (2014)

Category	
Transporte	
Vivienda y Serv. Comunitarios 1/	
Educación	
Agua	
Agro	
Salud	
Servicios Públicos 2/	
Defensa	
Orden y Seguridad	
Cultura y Religion	
Medio Ambiente	
Energía	
Otras Act. Econ. 3/	
Protección Social	

0   10   20   30   40

Chile (2014)

Category	
Transporte	
Protección Social	
Salud	
Educación	
Vivienda y Serv. Comunitarios 1/	
Orden y Seguridad	
Servicios Públicos 2/	
Cultura y Religion	
Energía	
Defensa	
Medio Ambiente	
Agro	
Otras Act. Econ. 3/	

0   10   20   30   40   50

Source: IADB calculations based on IADB data.

2.-Gaps: How efficient?

Public investment, efficiency, and growth

- Growing interest in measuring efficiency and comparing between economies:
- PIMA framework (IMF)
- Dabla - Norris et al (PIMI).
- IADB (Latin America)
- Others

2.-Gaps: How efficient?

PIMA Results

- Weaknesses of PIM institutions are widespread across the public investment cycle (2018).

Source: Staff calculations based on PIMA reports.

2.-Gaps: How efficient?

PIMA Results

- There is significant room for improving the design of PIM institutions, both across and within economies.

Average Scores by Income

Source: Staff calculation based on PIMA reports.
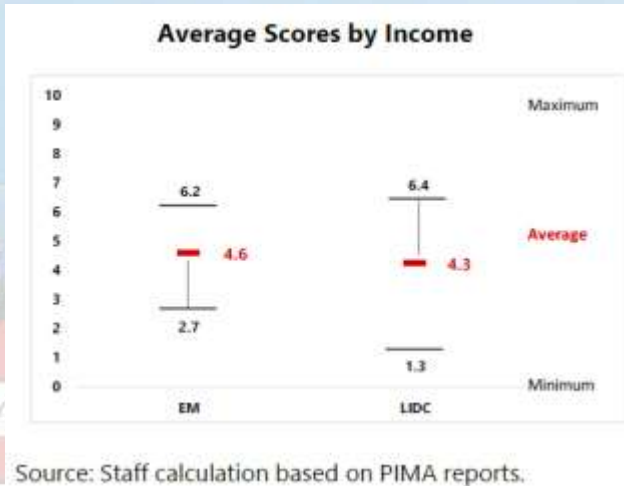
2.-Gaps: How efficient?

Public investment, efficiency, and growth

a. Impact on output level after four years of a 1 percent increase in public investment by efficiency group
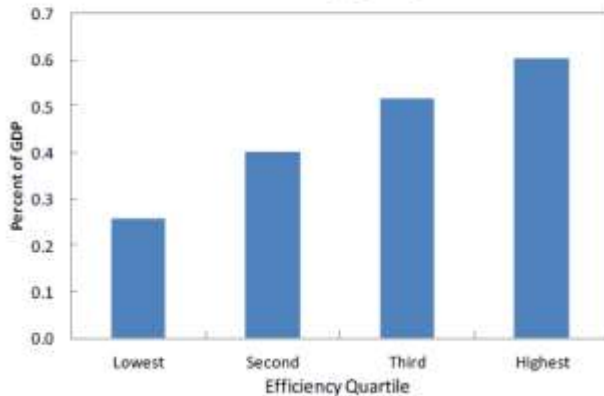
b. Profile of the output impact of a 1 percent increase in public investment by efficiency group
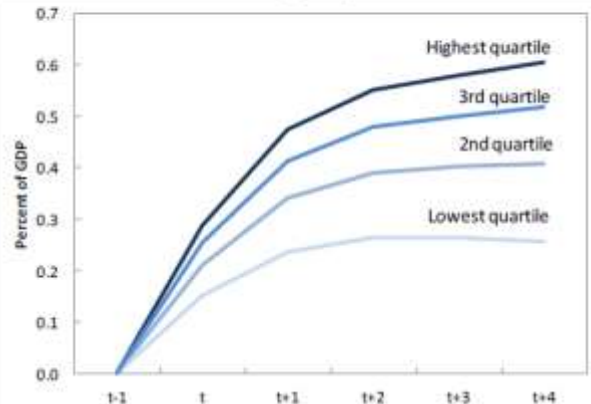
Source: FMI (2015): Making public investment more efficient

2.-Gaps: How efficient?
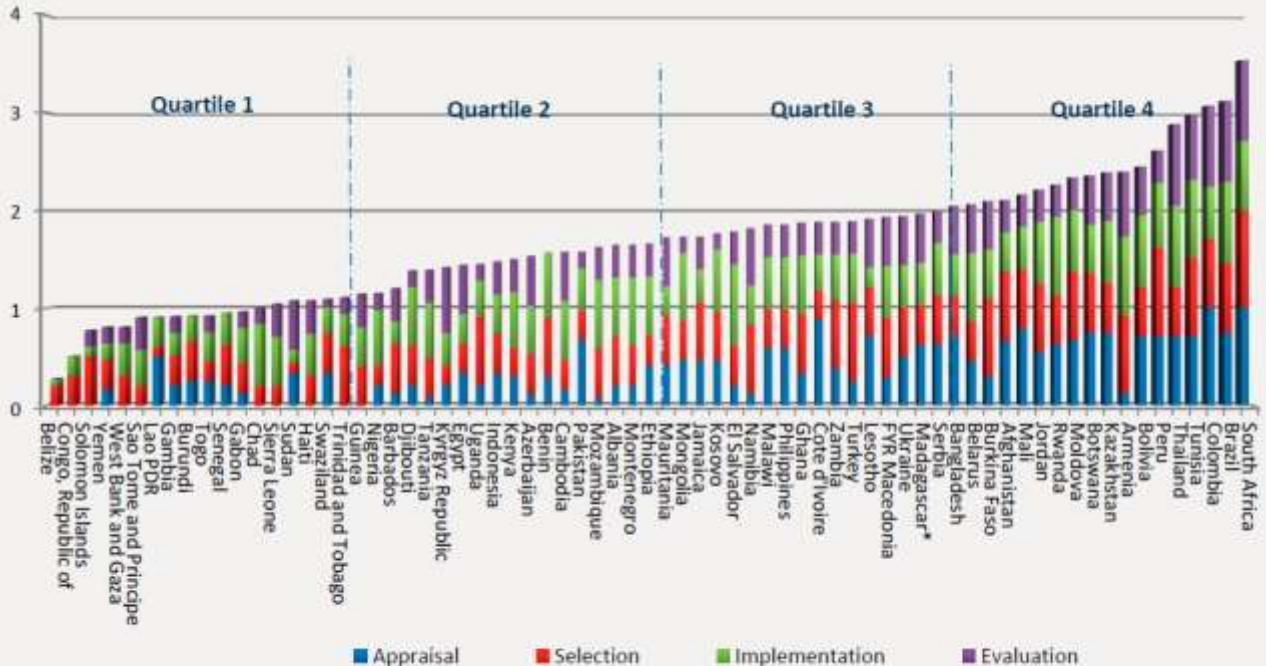
Source: IMF – Dabla Norris et al (2011): An index for Public Investment Efficiency

2.-Gaps: How efficient?

Relationship between GDP per capita and good quality in the administration of public investment (PIMI index, Dabla- Norris et al) in low-income countries

Logarithm of GDP per capita

$y = 0.8226x + 6.1841$
$R^2 = 0.2709$
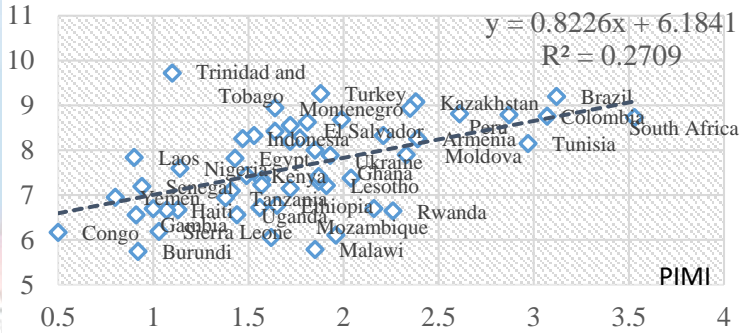
Source: Antonio Rojas with data from the IMF and Dabla-Norris et al. (2010)

Infrastructure Quality
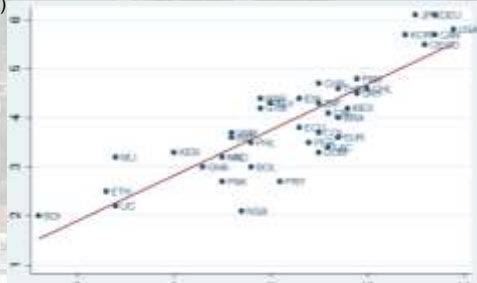
Source: Data form WEF and World Bank

Log of GDP

2.-Gaps: How efficient?

Public investment, efficiency, and growth

Indicator of efficiency of public investment by groups of economies

c. **Public Investment Efficiency Frontier (survey-based indicator)**
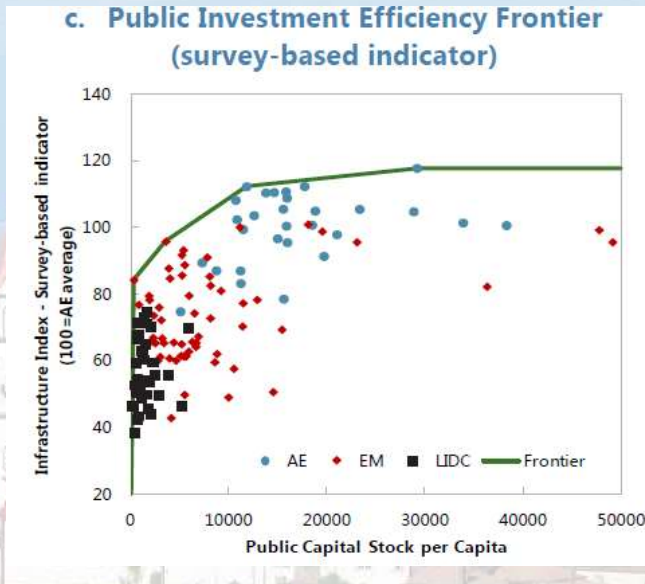
AE = advanced economies; EM = emerging markets; LID = low income economies.
Source: IMF, 2015

Public investment, efficiency, and growth (Latin America)

Public investment efficiency
2009 and 2015 data

Source: Antonio Rojas thesis (2019)

In this graph, and in the following one, the
efficiency measurement is restricted to one
dimension: ability to replace assets beyond
depreciation
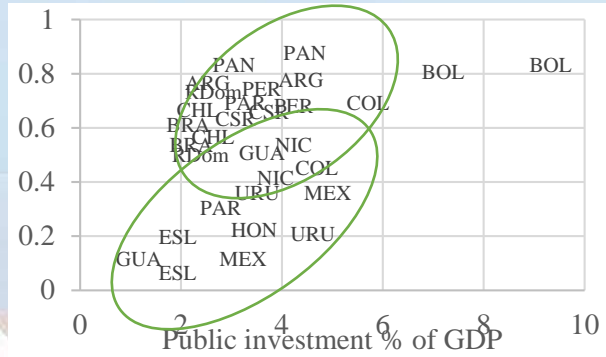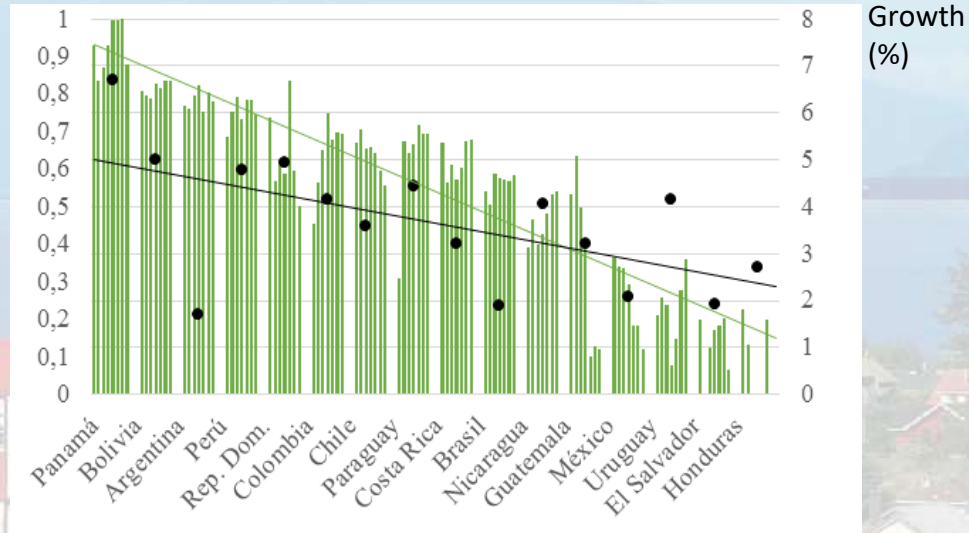
2.-Gaps: How efficient?

Public investment, efficiency, and growth (Latin America)

Public investment efficiency
2009 to 2016 data

Growth (%)

Source: Antonio Rojas thesis (2019)

Measuring efficiency of public investment management (Latin America)

Dimensions based on DN	
Strategic guides and project evaluation (24%)	Strategic guides
	Methodologies for project preparation and evaluation / Social prices
	Project evaluation
Project Selection (19%)	Budget allocation
	Role of the legislation
	Transparency
	Selection criteria
Project Implementatios (20%)	Bidding Process
	Deadlines
	Internal Control and audits
Ex post Evaluation (22%)	Project Evaluation, Audits and Asset Management
General characterization of the public investment cycle (15%)	Operational descriptions
	Role of the legislation
	Human Resources
	Access to information
	ICT

Source: Armendariz, Contreras, Parra and Orozco, 2016

2.-Gaps: How efficient?

Public investment management efficiency index (0 low efficiency – 4 high efficiency)
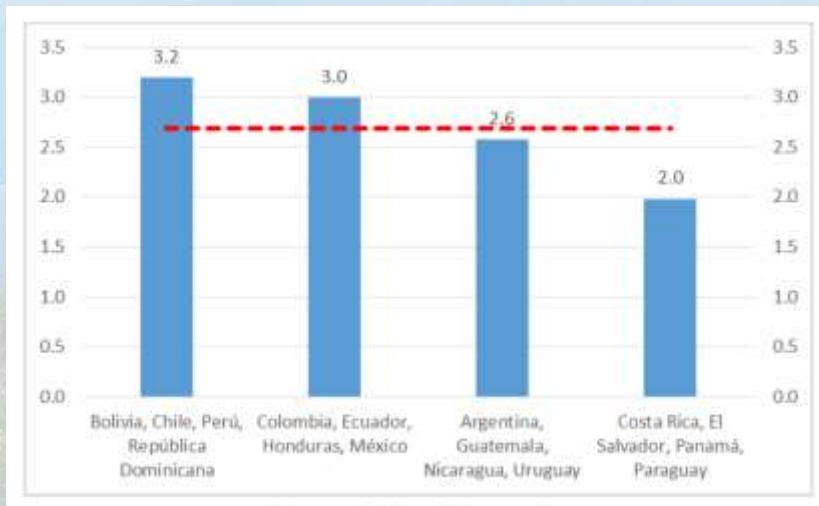
There is consistency between these four groups and the average age of the SNIPs of the countries:
Group 1 and 2: 21 years old
Group 3: 11 years
Group 4: 5 years

IADB Results - 2016

Source: Armendariz, Contreras, Parra and Orozco, 2016

2.-Gaps: How efficient?
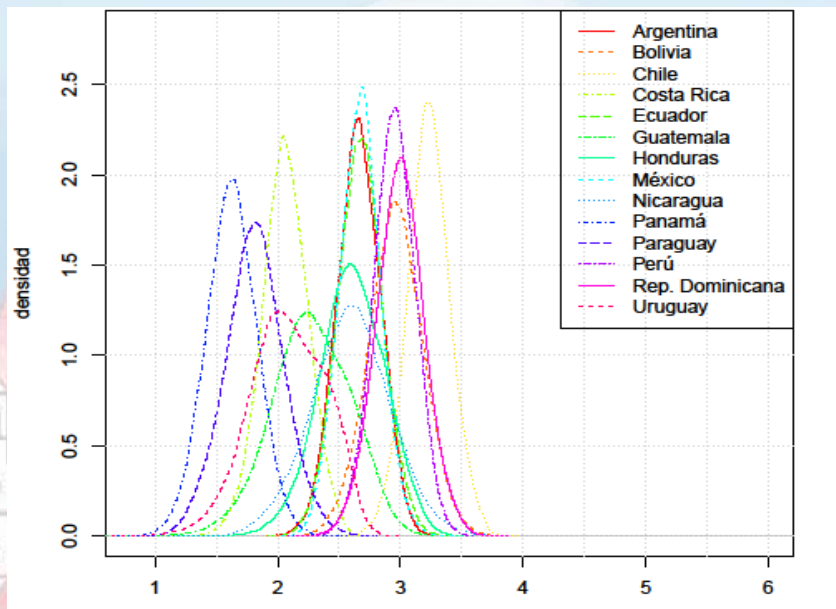
IADB Results - 2016

Source: Armendariz, Contreras, Parra and Orozco, 2016

2.-Gaps: How efficient?

EVOLUCIÓN DE VIABILIDADES TOTAL PAÍS
(Millones S/)

Año	Valor
2007	12,812
2008	20,272
2009	26,798
2010	20,875
2011	20,108
2012	43,339
2013	85,215
2014	62,336
2015	78,008
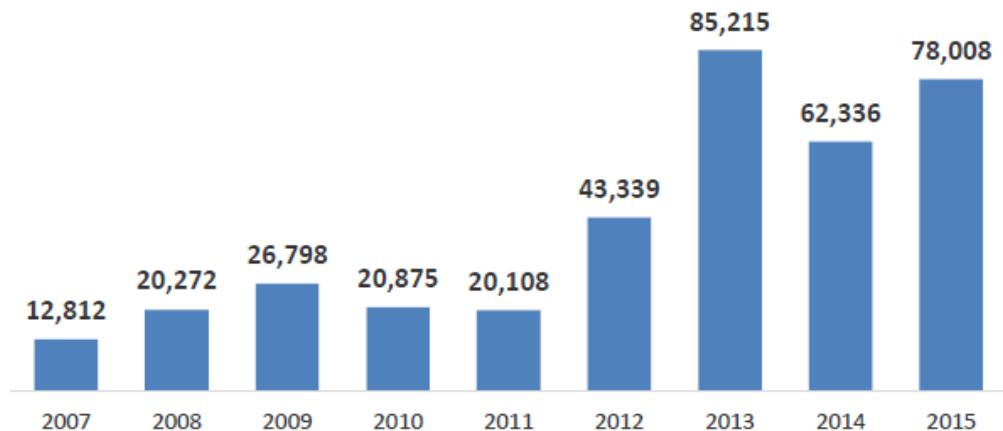
Fuente: Presentación de Eloy Durán. Dirección General de Inversión Pública. MEF. Perú. Abril 2016

2.-Gaps: How efficient?

IADB Results 2016
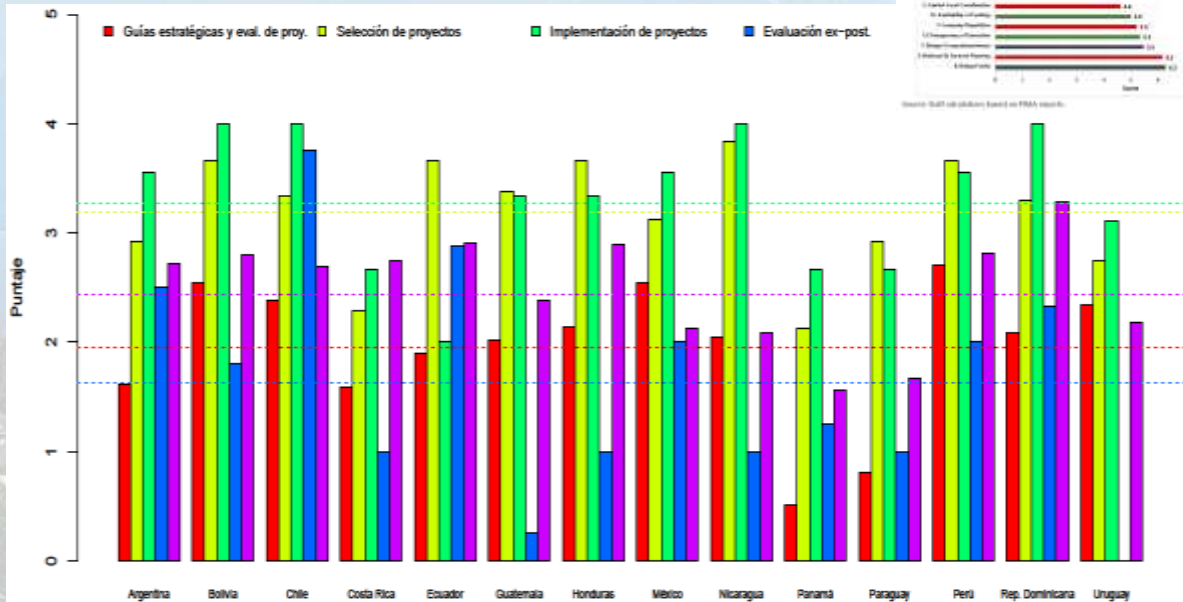
Source: Armendariz, Contreras, Parra and Orozco, 2016

3.-Good practices

What does efficiency depend on?

Quality of investment cycle management

- Ex Ante
- Ex Post
- Planning
- Evaluation ex-ante
- Audit and ex post Ev.
- Implementation and monitoring
- Selection and budget

3.-Good practices

Management tools in cycle components

Planning

Ex Ante

Audit and ex post Ev.

Ex Post

Evaluation ex-ante

Implementation and monitoring

Selection and budget
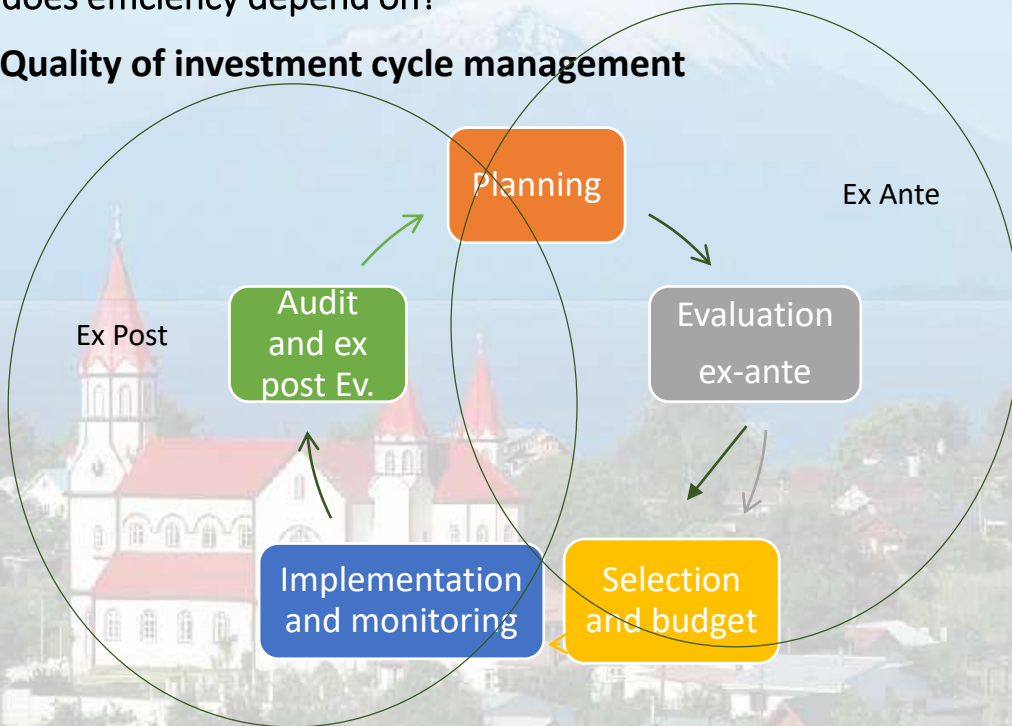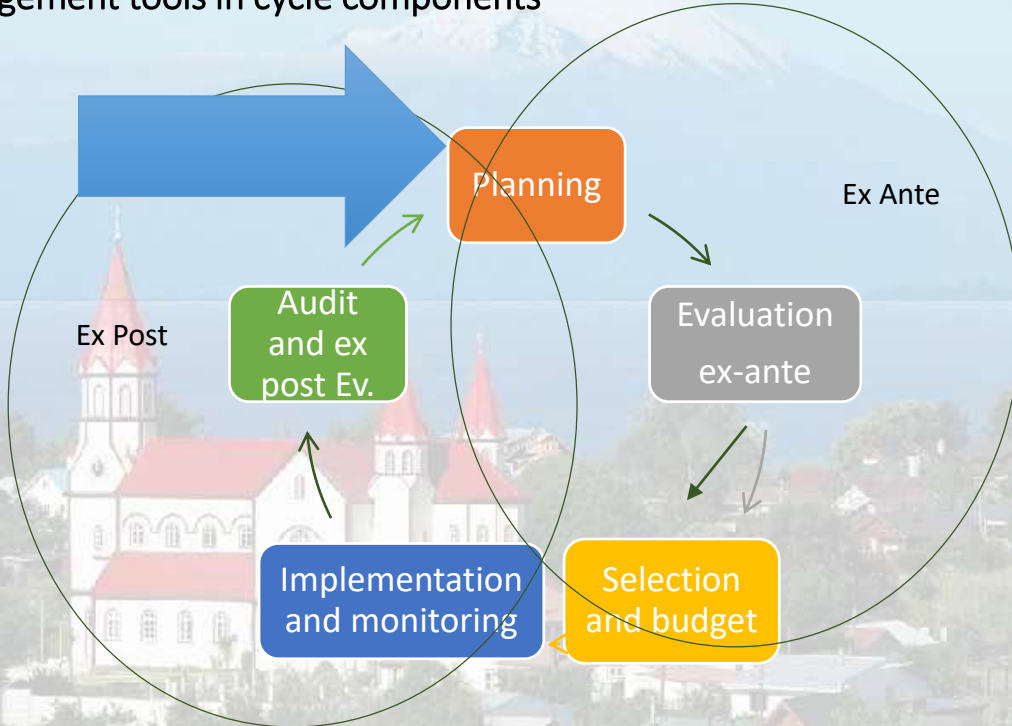
3.-Good practices
Korea
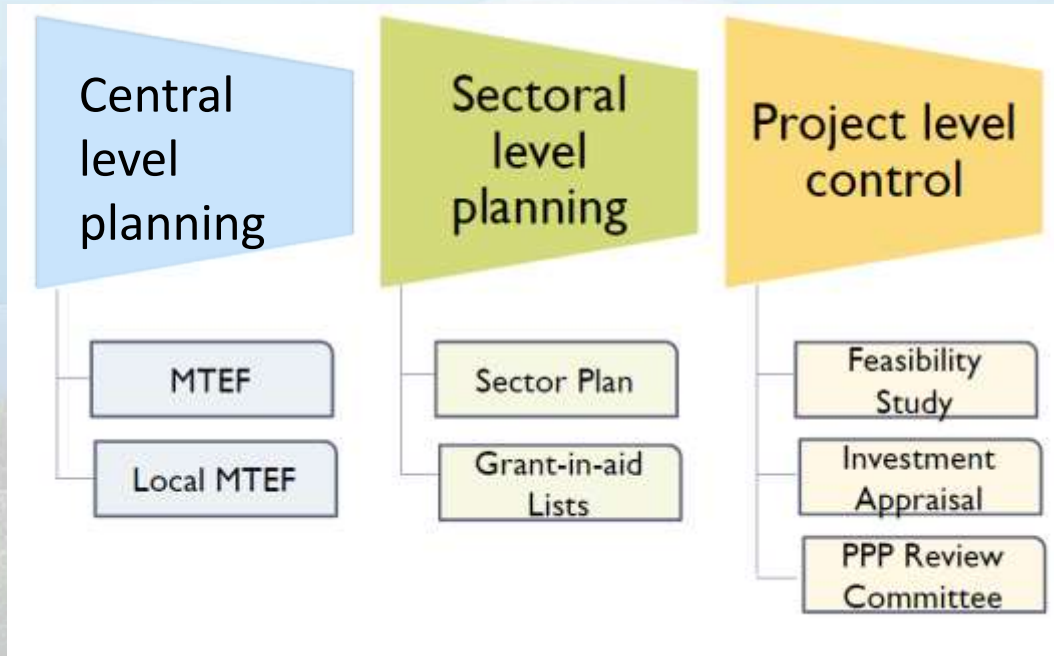
3.-Good practices

Management tools in cycle components
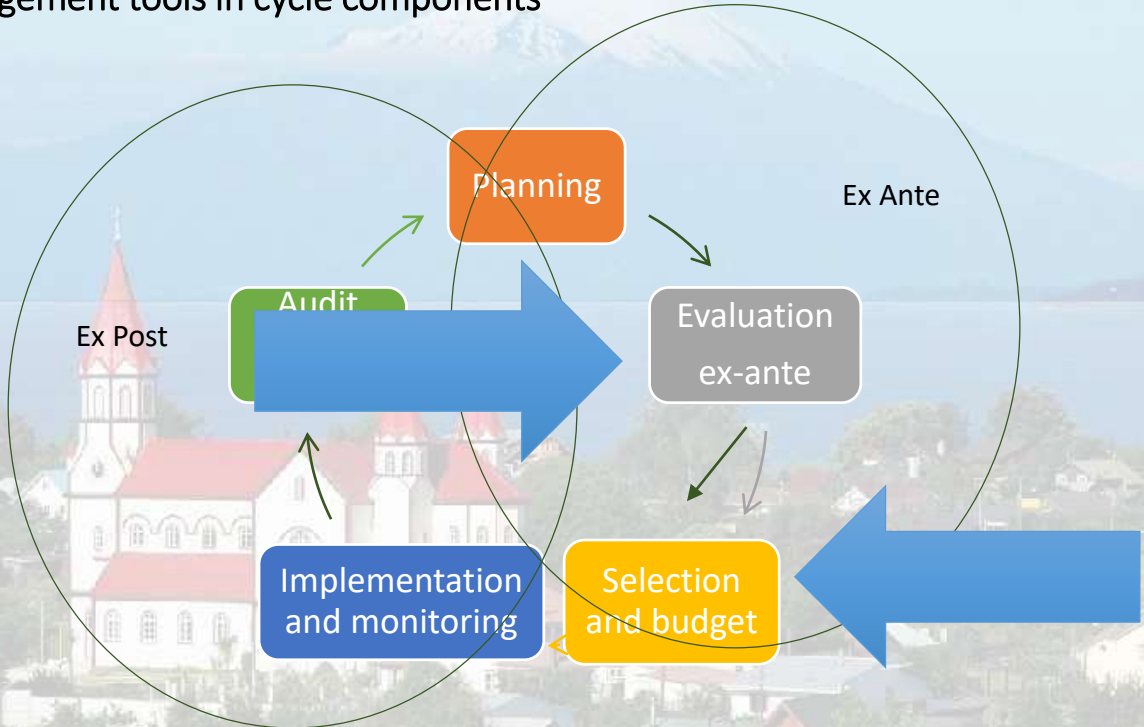
Chilean Public Investment System

MDS

DIPRES

ADMINISTRATION AND CONTROL

METHODOLOGIES FOR SOCIAL PROJECTS EVALUATION

TRAINING

SOCIAI PRICES

PROJECTS INTEGRATED BANK

RULES, INSTRUCTIONS AND PROCEDURES FOR PUBLIC INVESTMENT

TECHNICAL ECONOMIC EX ANTE ANALYSIS

EX – POST EVALUATION

SNI

BUDGET FORMULATION

BUDGET EXECUTION

RULES AND LAWS

BUDGETS LAW

LAW OF FINANCIAL ADMINISTRATION

Executors

Ministries, companies and other public institutions

DESIGN and EVALUATION

EXECUTION

Economic technical efficiency

Legitimated public action

Efficient Public Investment

3.-Good practices

Management tools in cycle components

Ex Post

Ex Ante

Planning

Audit and ex post Ev.

Evaluation ex-ante

Implementation and monitoring

Selection and budget
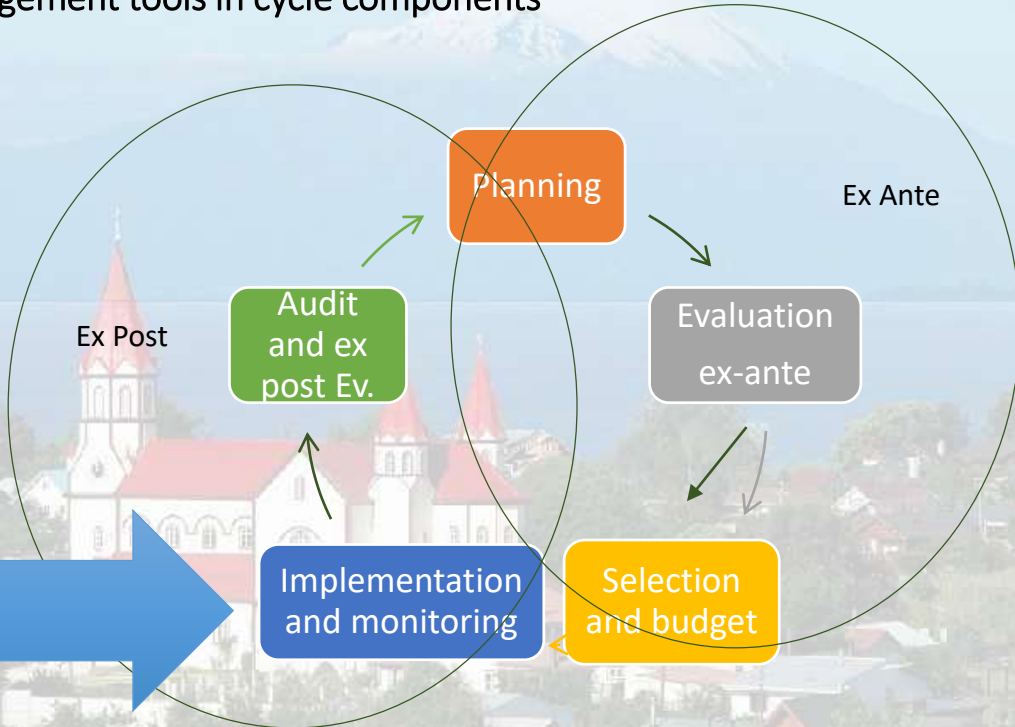
3.-Good practices

Management tools at implementation stage
Project planning
Project scheduling
Resource allocation and capacity planning
Budgeting and monitoring project costs
Quality management

Figure 13: Percent of Respondents that Reported their Organisations are Successful in the Five Performance Indicators, for Organisations that do and do not Use PM Methodologies
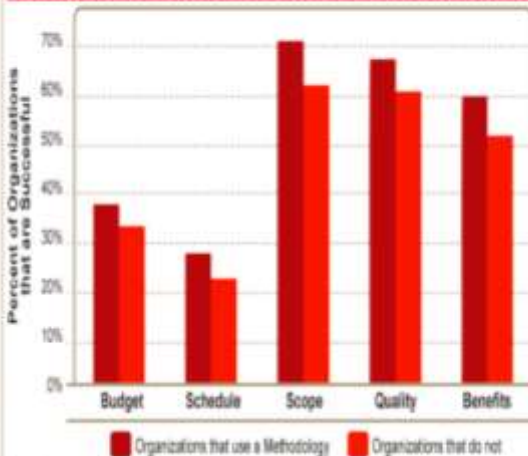
PWC survey of 1524 participants from 38 countries, including 20 from the OECD. The rest of the emerging economies

Source: Insights and Trends: Current Portfolio,
Programme, and Project Management Practices. The third global survey on the current state of project management. PWC. 2012

3.-Good practices

Management tools in cycle components

Planning

Ex Ante

Evaluation ex-ante

Audit and ex post Ev.

Ex Post

Implementation and monitoring

Selection and budget

European Transport Conference 2018
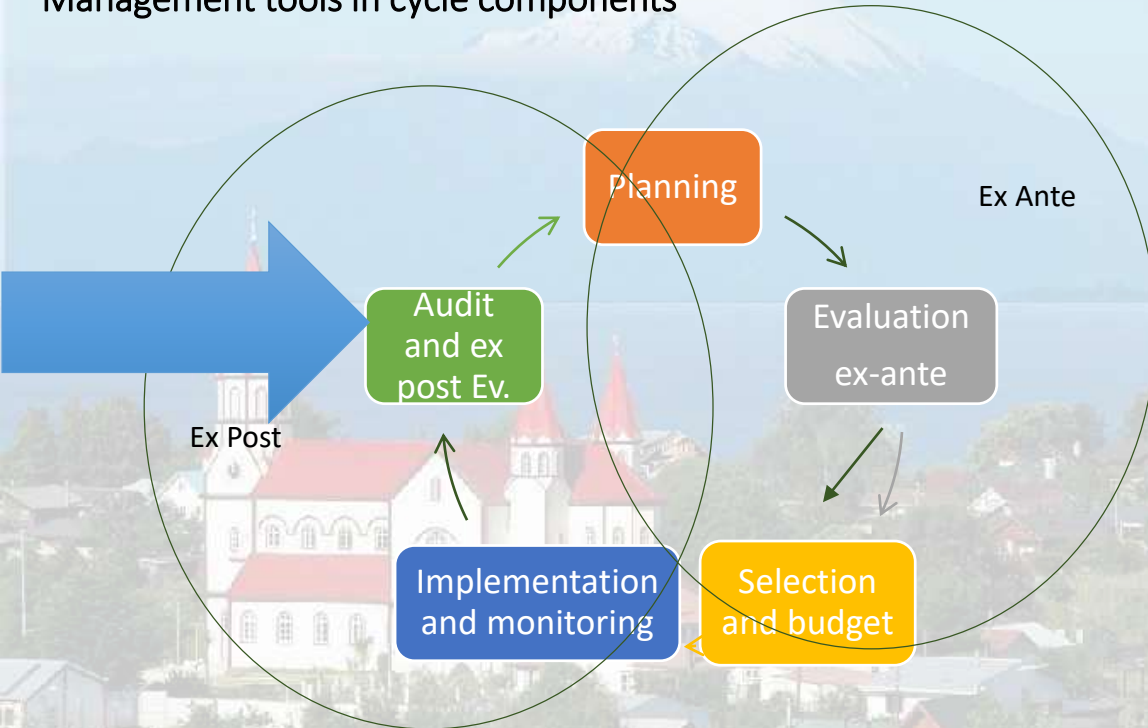
2018
EUROPEAN
TRANSPORT
CONFERENCE

EX POST EVALUATION OF MAJOR TRANSPORT INFRASTRUCTURE PROJECTS

Gerard de Jong
Significance and ITS Leeds
Silvia Vignetti
CSIL Centre for Industrial Studies, Milan
Chiara Pancotti
CSIL Centre for Industrial Studies, Milan

Cluster	Case study	Behavioural pattern	Final performance					Determinants					
			Relevance	Coherence	Effectiveness	Efficiency	EU added value	Relation with the context	Selection process	Project design	Forecasting capacity	Project governance	Managerial capacity
Successful	Greece – Rio Antirio Bridge *(Bright Star)*	Project in which the good predictions made ex ante turn out to be accurate. **The project delivers value for money and success.** Even in the event of exogenous negative events, the project performance remained positive.	5	5	4	5	5	4	4	5	5	5	4
	Poland - Gdańsk Tram *(Star)*	**The project performance is very positive.** However, due to the fact that the infrastructure and services refer to a small intervention embedded into an existing wider network the positive performance of the project is highly influenced by network effects not fully attributable to the project.	5	5	4	4	4	4	5	3	4	5	4
	Poland – Warsaw Line 8 Modernisation and Airport Connection *(Star)*		5	5	4	5	5	5	3	3	4	3	3
	Spain – Malaga Bypass *(Blurred Star)*	**Project partially successful.** The sub-optimal coordination among level of governments partially clouded the fulfilment of all the expected objectives. However, the most urgent need was successfully addressed.	5	5	3	3	1	5	3	5	4	1	4
Intermediate success	Hungary – M43 motorway *(Little Star)*	**Project performance is positive but far below the expectations.** This is due to some deficiencies in the planning phase.	5	4	3	3	4	3	2	3	-2	4	4
	Slovakia – Žilina Railway Modernisation *(Little Star)*		5	5	3	3	5	-1	-4	3	1	3	4
Least successful	Germany – Autobahn A14 *(Rising Sun)*	Project affected by a combination of ex ante unfavourable factors (overoptimistic traffic forecast, inappropriateness to the local context). However, **the effective design and a good managerial capacity prevented the project failure.**	2	5	2	3	1	-2	1	2	-3	4	4
	France - Le Havre tramway *(Eclipsed Sun)*	Project in which a combination of ex ante unfavourable factors (optimism bias, inappropriateness to the local context and bad incentives) **prevented the project to reach its expected benefits** and the good managerial capacity is unlikely to save the project from its underachievement.	2	3	2	2	3	-1	-2	5	-3	4	3

4.-Recommendations

Effective public investment across levels of government (OECD, 2019)

Pillar 1: Co-ordination across levels of government and policy areas

1) Principle 1. Invest using an integrated strategy tailored to different places
2) Principle 2. Adopt effective instruments for co-ordinating across central and local levels of government
3) Principle 3. Co-ordinate horizontally among local governments to invest at the relevant scale

4.-Recommendations

Pillar 2: Strengthen capacities for public investment and promote learning across levels of government

1) Principle 4. Assess upfront the long-term impacts and risks of public investment (Ex ante Evaluation)
2) Principle 5. Engage with stakeholders throughout the investment cycle
3) Principle 6. Mobilise private actors and financing institutions to diversify sources of funding and strengthen capacities
4) Principle 7. Reinforce the expertise of public officials and institutions involved in public investment
5) Principle 8. Focus on results and promote learning from experience (Ex post Evaluation)

4.-Recommendations

Pillar 3. Ensure sound framework conditions at all levels of government

1) Principle 9. Develop a fiscal framework adapted to the investment objectives pursued
2) Principle 10. Require sound and transparent financial management at all levels of government
3) Principle 11. Promote transparency and strategic use of public procurement at all levels of government
4) Principle 12. Strive for quality and consistency in regulatory systems across levels of government

5.-New challenges

Weak application of technologies en some economies (scale 0 -4):

Latin America Results 2019
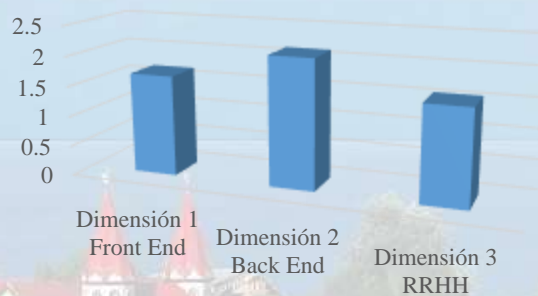
Source: Armendariz, Contreras y Ramírez. "E-Inversión pública. El uso de la tecnología en la gestión de la inversión pública".2019. Working paper

5.-New challenges

UN has proposed a roadmap based on the Sustainable
Development Goals (SDGs):

    Challenges for Public Investment Managament.

    Will the project portfolios be adapted to the SDGs?

New topics also emerge, such as:

    Climate change and the incorporation of issues
    related to disaster risk

    Risk management in general (not only climate)

    Energy efficiency

    Public-private articulation of project portfolios

    Mega projects. Example: airports in large capital
    cities, large bridges, etc.

Implementation of Public Investment Systems:

Thanks!

Implementation of Public Investment Systems:

Annexes

3.-Good practices and bad practices

Ministry 1 (M1)

120%

100%

80%

60%

40%

20%

0%

Social CBA Fulfillment

% Project Execution

Ministry 2 (M2)

Professional team size M1 = 2 * Team size M2

Source: Own elaboration

3.-Good practices

PROCESO DE PREINVERSIÓN