Findings from Public/SOE and Private Infrastructure Investment Commitment Data, 2017

Background and Concept

1. Background

Infrastructure investment has been recognized as an accelerator for economic development, but there is little knowledge on levels of infrastructure investment and spending.

- The Private Participation in Infrastructure (PPI) database has 28 years worth of data on private sector investment commitments in infrastructure projects in developing countries at financial close. However, the corresponding public sector investments undertaken are unknown.

- With support from PPIAF, an exercise to collect project level data for projects sponsored directly by public budget as well as indirectly through SOEs for **2017**, in low and middle-income countries, was undertaken.
  - To complement the PPI database, projects are recorded at a stage at which construction can begin, after all conception, planning, documentation and contracts, financing (if any) and alignment of counterparties and contractors has concluded; e.g. EPC contract award, financial close, construction start
  - An external consultancy firm, IJ Global was appointed to carry out the data collection.
    - IJ Global receives market submissions from banks, financial institutions, EPC contractors etc on infrastructure projects and along with online research, it aggregated information from these submissions to identify public and SOE projects.
    - It is expected that when SOEs raise long term finance or when contractors raise working capital for implementing projects, such information could be accessible to IJ Global through its market participants
  - The project level data thus collected is referred to as the **SPI dataset**.
  - This is a pilot exercise which will help test the data availability at the project level

- This deck presents the findings of the aforementioned exercise.

2. Public/SOE Infrastructure (SPI) Dataset

SPI Dataset records investment commitments in infrastructure projects in energy (excluding oil & gas), transport, water and ICT being implemented directly by public budgets or indirectly through SOEs.

SOE Projects

Projects sponsored by State Owned Entities (SOEs) with 80%-100% stake*. SOEs are:

✓Directly or indirectly owned State entities with at least 51% state shareholding

✓Majority-owned by multiple States

✓Entities that are a subsidiary in a family tree of entities ultimately majority-owned by the state

×SOEs implementing projects in foreign jurisdiction (covered by PPI DB)

×Entity that is strategically supported by the state or SOE(s) but not majority-owned

×Privately-owned but has explicit or implicit sovereign support in the event of distress or default

Public Projects

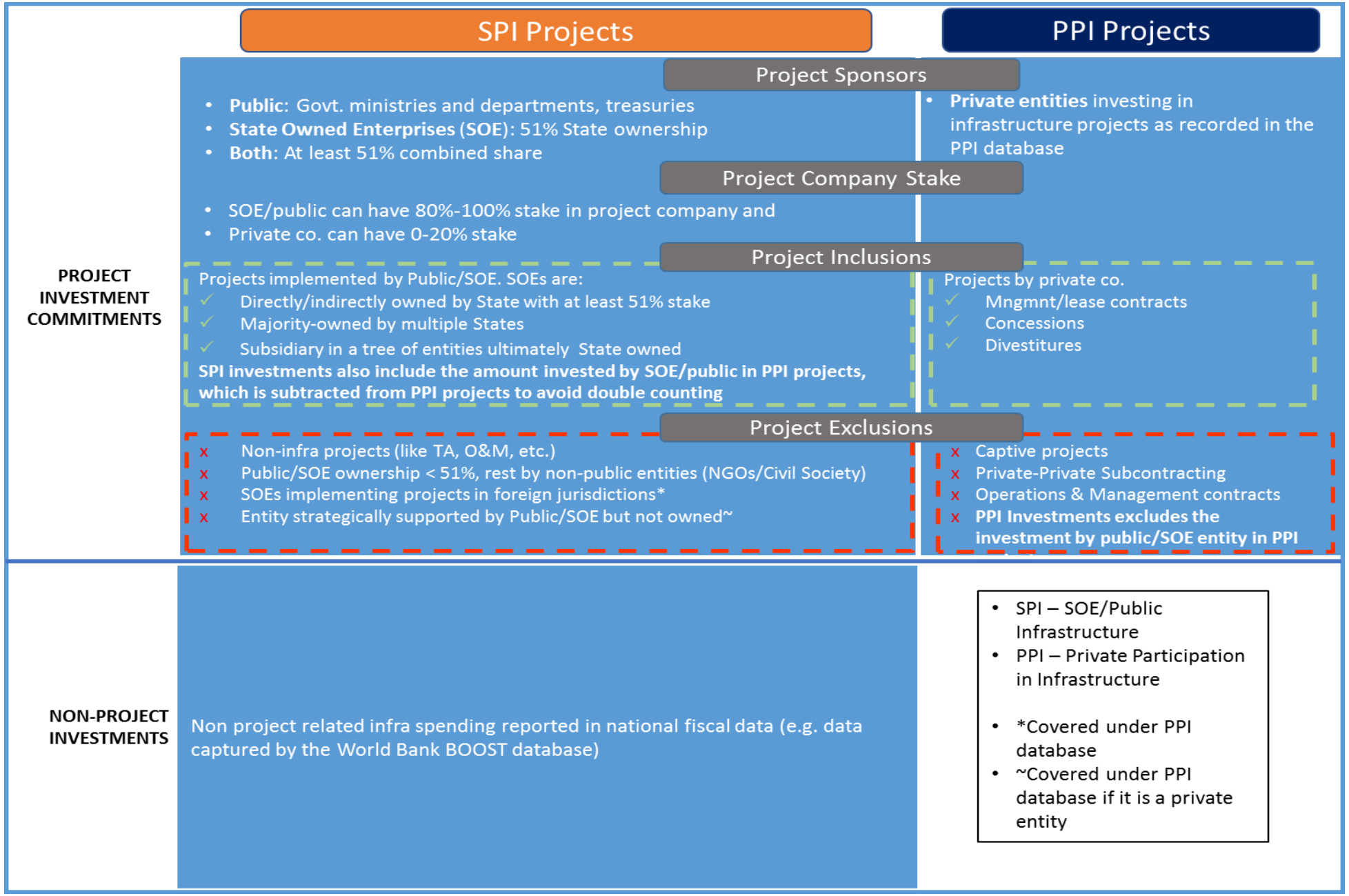
✓Projects sponsored by Government ministries and departments, including treasuries.

✓80%-100% public stake*

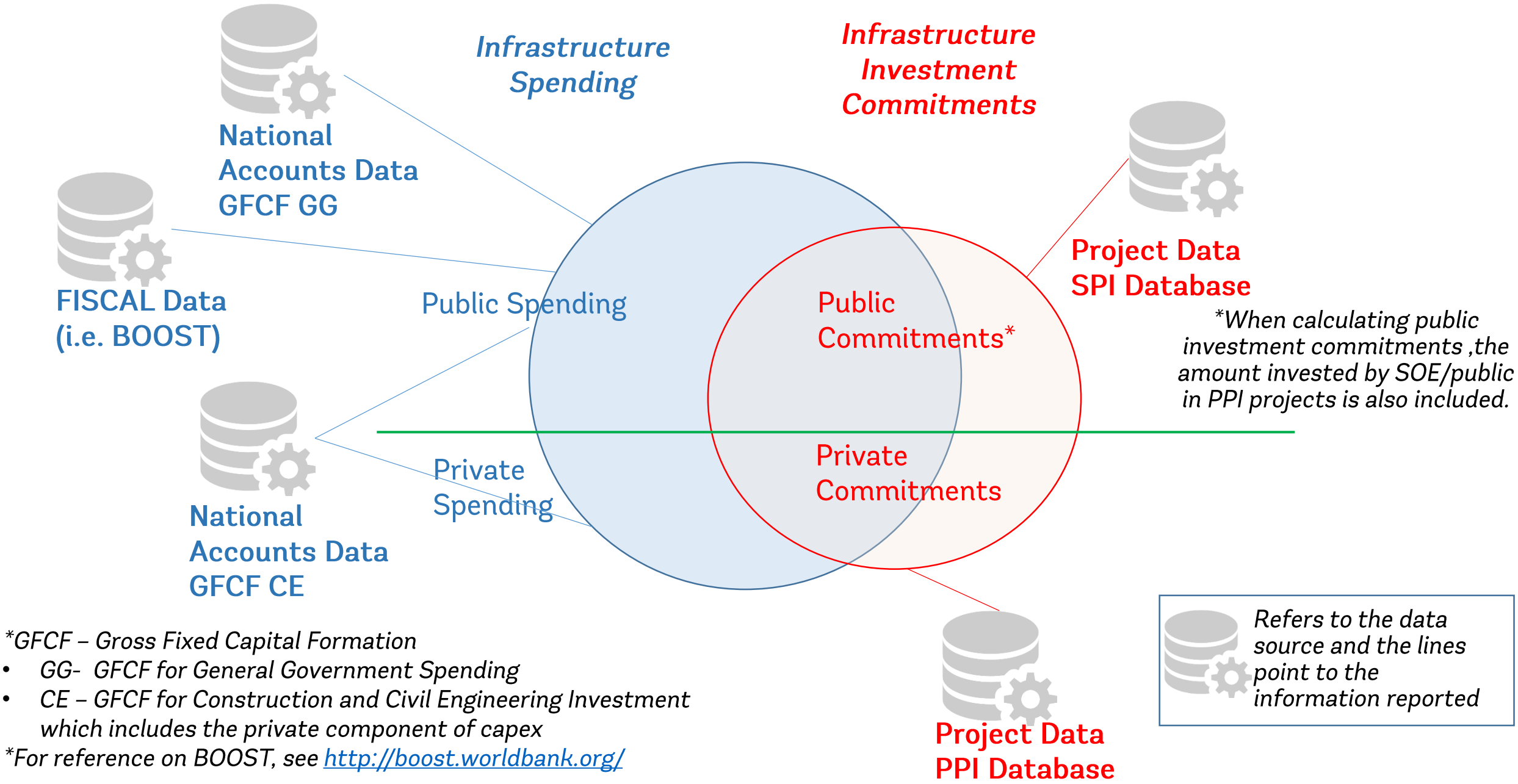
*PPI projects have minimum 20% private participation

Data Coverage: SPI Projects have been recorded for 110 countries out of the 137 low and middle-income countries. The dataset represents the best efforts of a research team to compile publicly available information, and as such projects not reported by major news sources, databases, government websites, market submissions and other sources may be omitted. Data covers only project-level infrastructure investment commitments above US$1 million and as such TAs, O&M contracts, non-project investments are excluded.

3. The Universe of Infrastructure Investments



4.1. Measuring Infrastructure Spending and Investment: Data Sources



*GFCF – Gross Fixed Capital Formation

- GG- GFCF for General Government Spending
- CE – GFCF for Construction and Civil Engineering Investment which includes the private component of capex

*For reference on BOOST, see http://boost.worldbank.org/

4.2. Measuring Infrastructure Spending and Investment: Key Approaches

	Data Sources	Method	Sources of Overestimation	Sources of Underestimation
Infrastructure Spending	• National accounts data – GFCF GG • Private participation in infrastructure (PPI) database (as a proxy for private spending)	**GFCF GG + PPI**	• Includes Non Infrastructure Investments • PPI database as a proxy - commitments vs. dispersed funds	• Excludes SOE Spending • PPI database may not cover all of the private investments
	• National accounts data – GFCF CE	**GFCF CE**	• Includes Non Infrastructure Construction (i.e. recreation facilities)	• Excludes Infrastructure Machinery, Equipment and Buildings
	• Fiscal Data (BOOST)* • PPI database (as a proxy for private spending) **Available for 55 countries*	**Fiscal Data + PPI**	• PPI database as a proxy - commitments vs. disbursed funds	• Excludes SOE Spending • PPI database may not cover all of the private investments
Infrastructure Investment Commitments	• Project level data – PPI Database • Project level data – SOE/Public Infrastructure Commitments (SPI) Database	**PPI +SPI**	• Records projects at the time of commitment – may include projects that get cancelled/distressed in the future.	• Data availability issues – information on projects may not be always publicly available

5. Comparing Investment Commitments vs. Spending Estimates

Infrastructure Investment Commitments (SPI+PPI)

Futuristic

**In a given year captures amounts public and private sector commit to spend over the life of the project*

Records Total Projects' Cost

**undertaken in a given year to be spent over the whole lifetime of the project in the future*

Covers 4 sectors

** energy, transport, water and ICT backbone*

Total SPI+PPI estimate

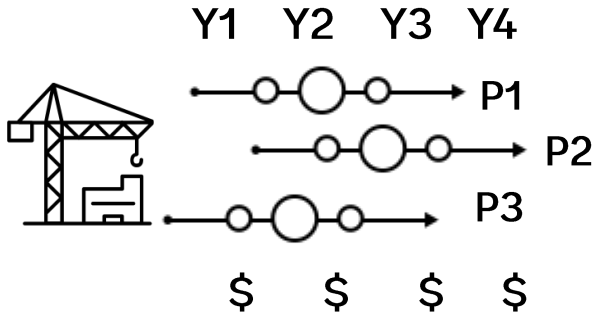
$ 0.5 trillion

Across 110 countries

Infrastructure Spending (BOOST)

Actual

**Captures amounts disbursed by public and private sector in a given year*



Records Yearly Portions of Project Spending

**projects' cost is distributed over the years*

**captures multiple projects' spending in a given year*

Covers 4 sectors

** energy, transport, water and ICT*

Projected BOOST+PPI estimate

$ 0.54 trillion

Across all developing countries, when data for 55 countries is projected based on assumption that all other developing countries has the same ratio of spending/GDP

Data Limitations

- The dataset represents the best efforts of a research team to compile publicly available information, and as such projects not reported by major news sources, databases, government websites, market submissions and other sources may be omitted.

- Data covers only project-level infrastructure investment commitments above US$1 million and as such TAs, O&M contracts, non-project investments are excluded.

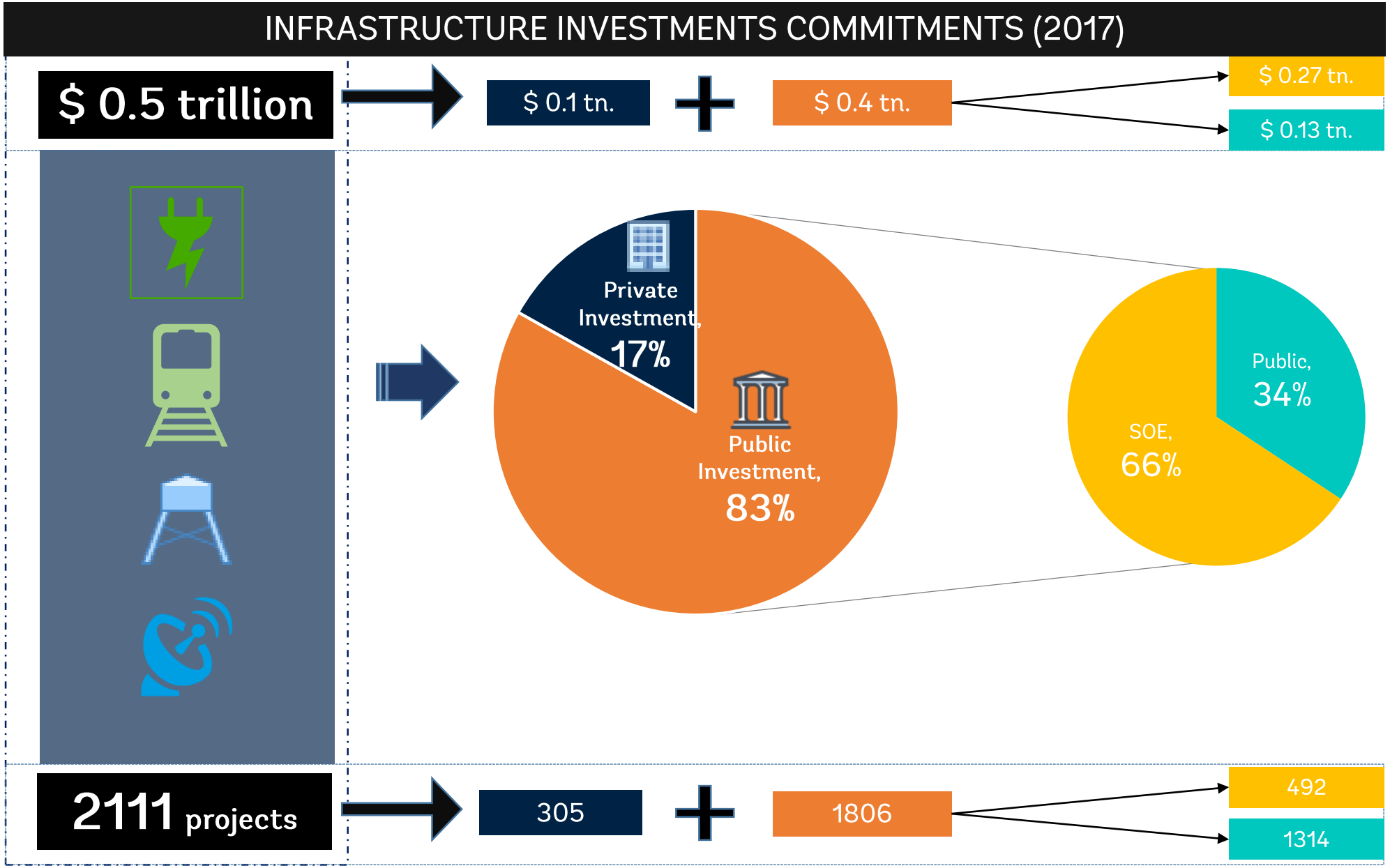
- Only provides snapshot of one-year and as such difficult to ascertain whether this year is the norm or an anomaly.

- Coverage likely weak for some EAP and LAC countries, based on comparison with BOOST data.

% of GDP	BOOST	SPI+PPI
SSA	2.68	2.8
EAP	2.15	1.7
ECA	1.46	2
LAC	2.24	1
MENA	1.14	1.8
SAR	1.38	2.4

Key Findings of the Study

6.1. 2017 Investment*: Overview



Public Investment

Private Investment

SOE

Public entity

*Refers to investment commitments whenever mentioned in the deck

Note: Investment figures are rounded off to nearest decimal

Source: SPI and PPI databases, World Bank, as of August 2018

6.2. 2017 Investment: Average and Median Investment Sizes

1

SOE's accounted for only 27% (492 out of 1806) projects but 54% of all infrastructure investment commitments in 2017.

Figure 1: Average investment size by sponsor type (USD mn.)

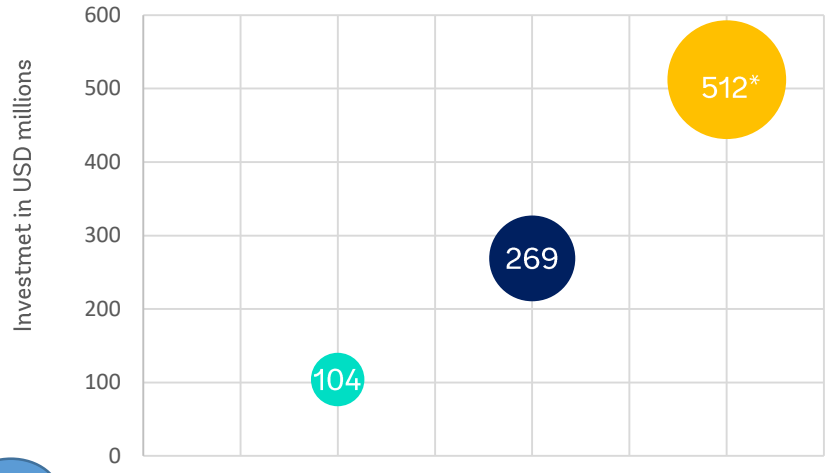
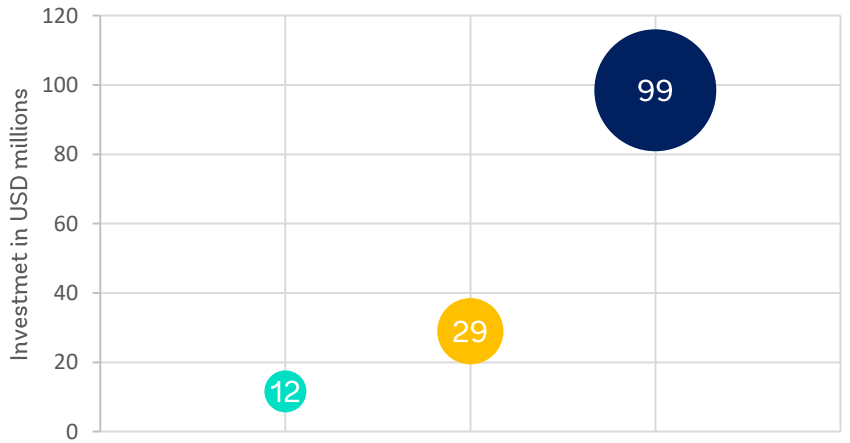


Figure 2: Median investment size by sponsor type (USD mn.)



Projects with investment size > 5 billion

SOE (12)
- China (4)
- Indonesia (2)
- Russia (2)
- Azerbaijan, India Thailand, Malaysia (1 each)

Public Entity (3)
- Bangladesh (1)
- Iran (1)
- Nigeria (1)

2

Typically project sizes for private projects are the largest at around ~100 million. SOE project sizes typically tend to be ~30 million, but due to 12 projects with investments greater than 5 bn. each which accounted for 48% of total SOE investments their average investment size is *512 million.

Private Investment
SOE
Public entity

Source: SPI and PPI databases, World Bank, as of August 2018

7.1. Regional Investment: Overview

1

Public/SOE investment commitment accounted for **more than 3 qtrs.** of total investment in **most regions** except for **LAC. Asia** (**EAP** and **SAR**) attracted **more investment commitments ($306 billion) than all other regions combined.**

2

Although **EAP** is **4th** in terms of regions with the **highest share of public/SOE** investment commitment (83%), their **absolute public/SOE investment commitment** amount is almost equal to **all of the other regions combined. China** and **Indonesia** made up **84%** of **total public/SOE investment commitment** in **EAP.**

Figure 3: Share of SOE, public entity and private investment by region, 2017

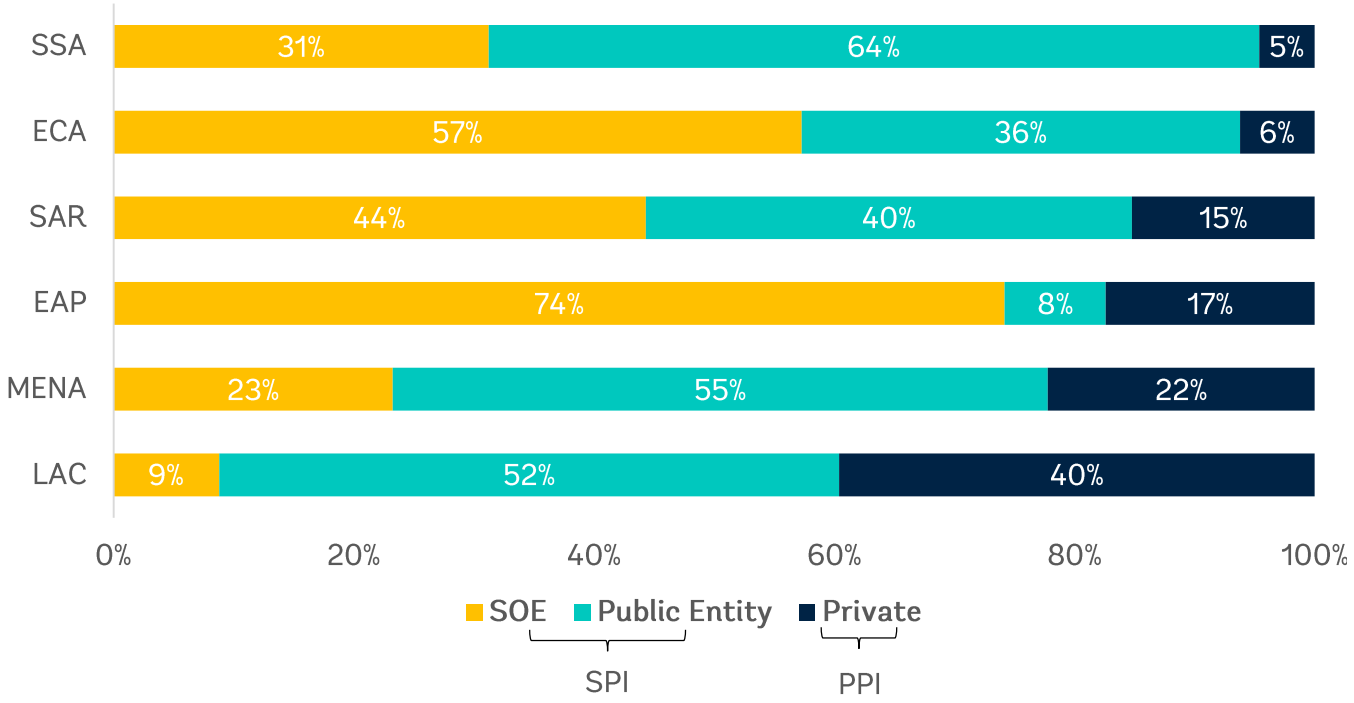
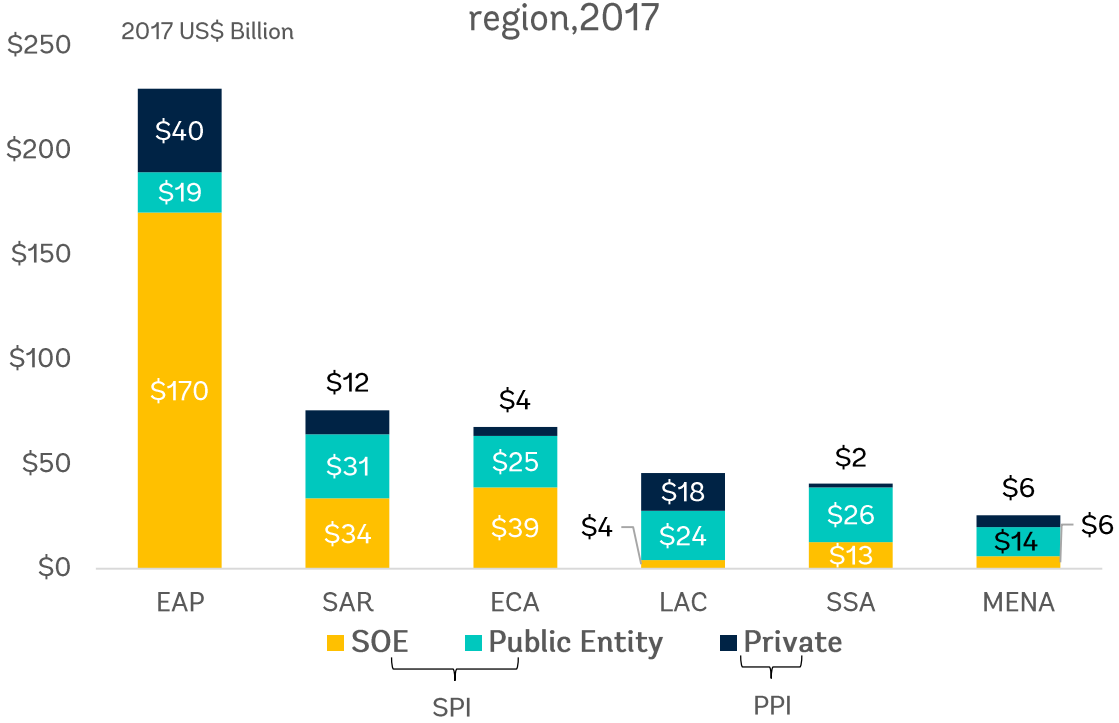


Figure 4: SOE, public and private investments by region,2017



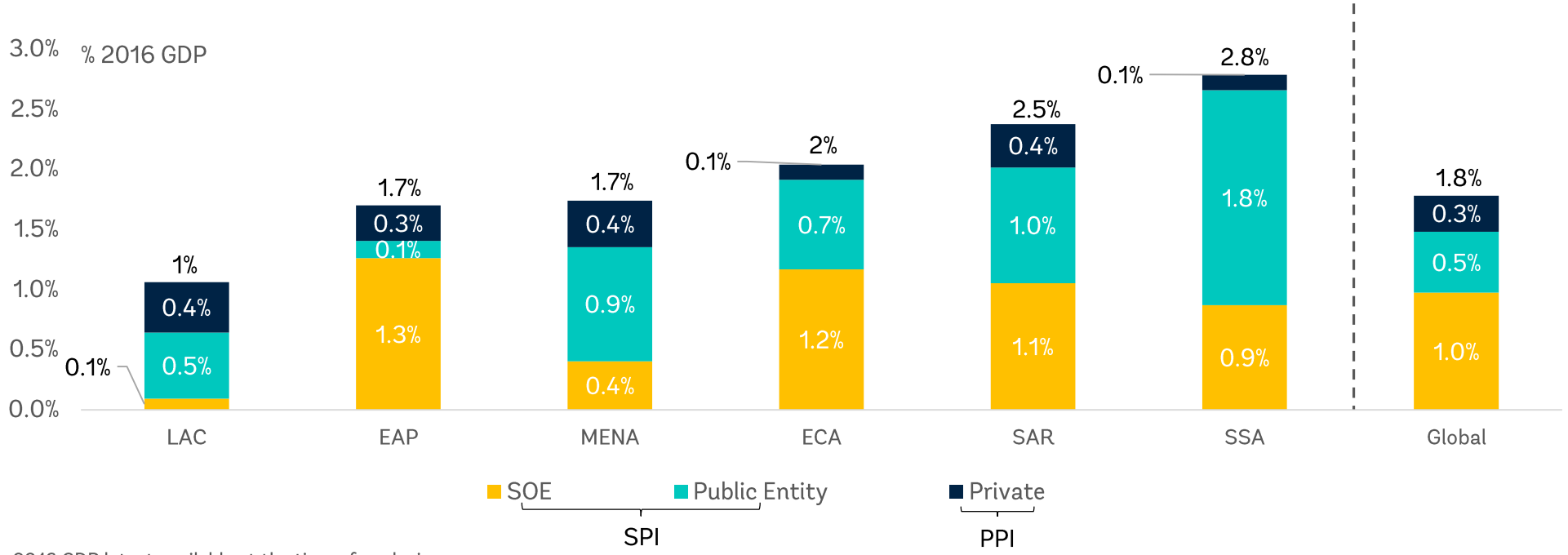
Source: SPI and PPI databases, World Bank, as of August 2018

7.2. Regional Investment: As a Share of GDP

1 **As a share of GDP, SAR** and **SSA** invested the most in infrastructure though for **SSA,** most of it was done by **public/SOE (2.7%)** while for **SAR**, the **private** sector was **more active (0.4%).**

2 **EAP** has the **highest absolute amount** of **public/SOE** investment commitment but as a **share of its GDP,** the amount is **not as significant.** The region's **share of private** investment commitment **(0.3%)** is also lower than those of **LAC, MENA,** and **SAR.**

Figure 5: SOE, public and private investment commitments as percentage of GDP* by region, 2017

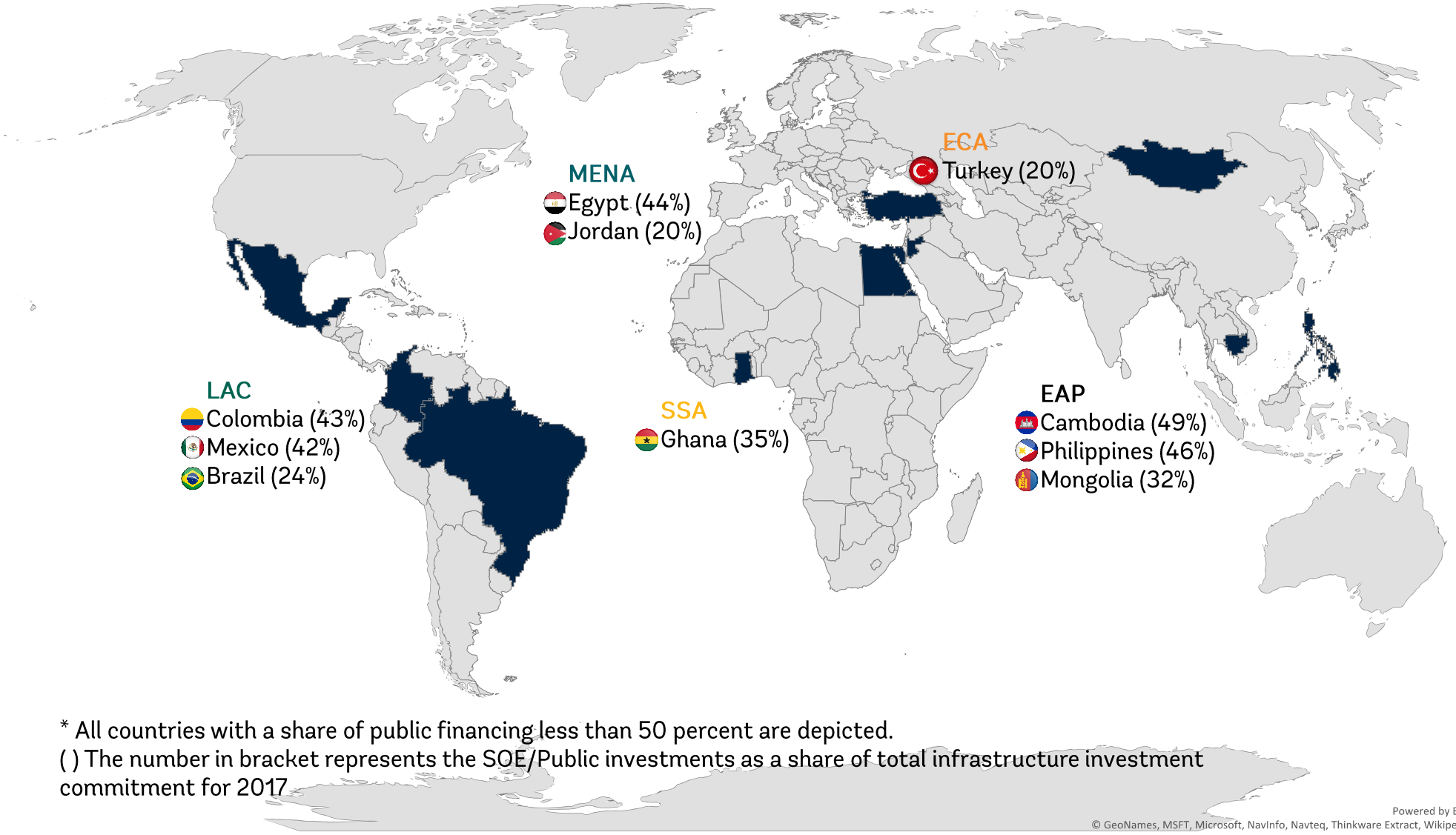


*Based on 2016 GDP latest available at the time of analysis

Source: SPI and PPI databases, World Bank, as of August 2018

8. Countries with Private Investment higher than Public/SOE Investment

Figure 6: Countries with SOE/Public entity Investments less than Private investments (2017)



* All countries with a share of public financing less than 50 percent are depicted.
( ) The number in bracket represents the SOE/Public investments as a share of total infrastructure investment commitment for 2017

Source: SPI and PPI databases, World Bank, as of August 2018

8.1. Countries with Private Investment higher than Public/SOE Investment

2017 investment as share of GDP and PPP regulatory frameworks					
Country	**% of GDP**	**National Plan promoting PPP**	**PPP Law**	**PPP Guideline**	**PPP Unit**
Cambodia	8.90%	Yes	No	Yes	Yes
Jordan	8.60%	Yes	Yes	Yes	Yes
Egypt	2.0%	Yes	Yes	Yes	Yes
Ghana	1.80%	Yes	No	Yes	Yes
Mongolia	1.50%	Yes	Yes	Yes	Yes
Philippines	1.40%	Yes	Yes	Yes	Yes
Mexico	1.30%	Yes	Yes	Yes	No
Brazil	0.40%	Yes	Yes	Yes	Yes
Colombia	0.20%	Yes	Yes	Yes	Yes
Turkey	0.20%	Yes	No	Yes	Yes

Source: PPI and SPI Databases, World Bank, as of November 2018

9.1. Sectoral Investment: Overview

1. **Energy and transport sectors** dominated in terms of attracting investments.

2. **MENA, SAR, and SSA** invested heavily in **energy** for both public/SOE and private investments, whereas **ECA and EAP** directed investments into **transport.**

3. **LAC** is an interesting case where **public/SOE** investment was mainly used for **transport** projects, while **private** investment went into **energy** projects.

Figure 7: Total investment by sector, 2017

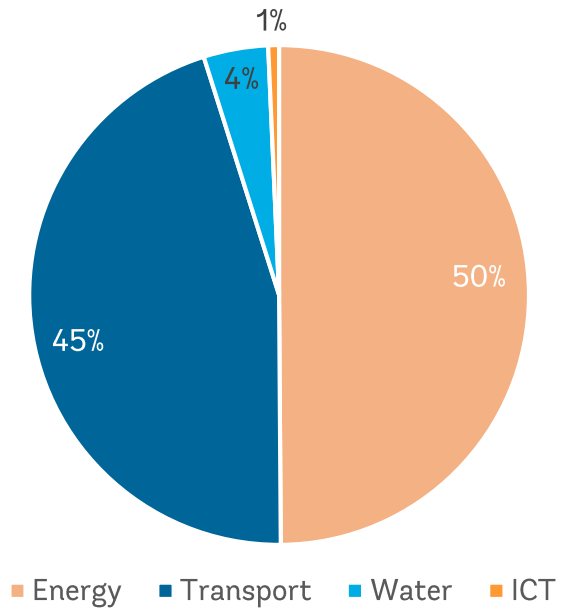
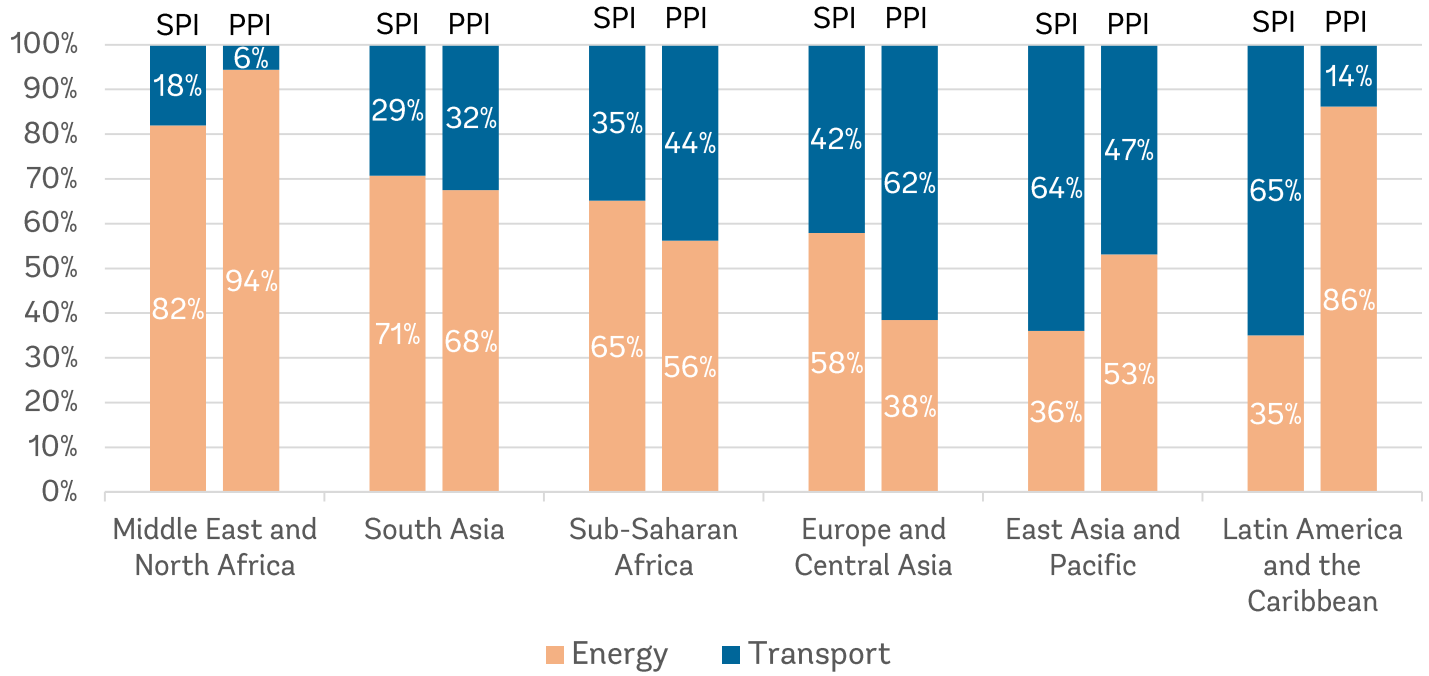


Figure 8: SPI and PPI investments by region and sector, 2017



Source: SPI and PPI databases, World Bank, as of August 2018

9.2. Sectoral Investment: SOE vs Public Entity

Figure 9: Break up of sectoral investment by sponsor type

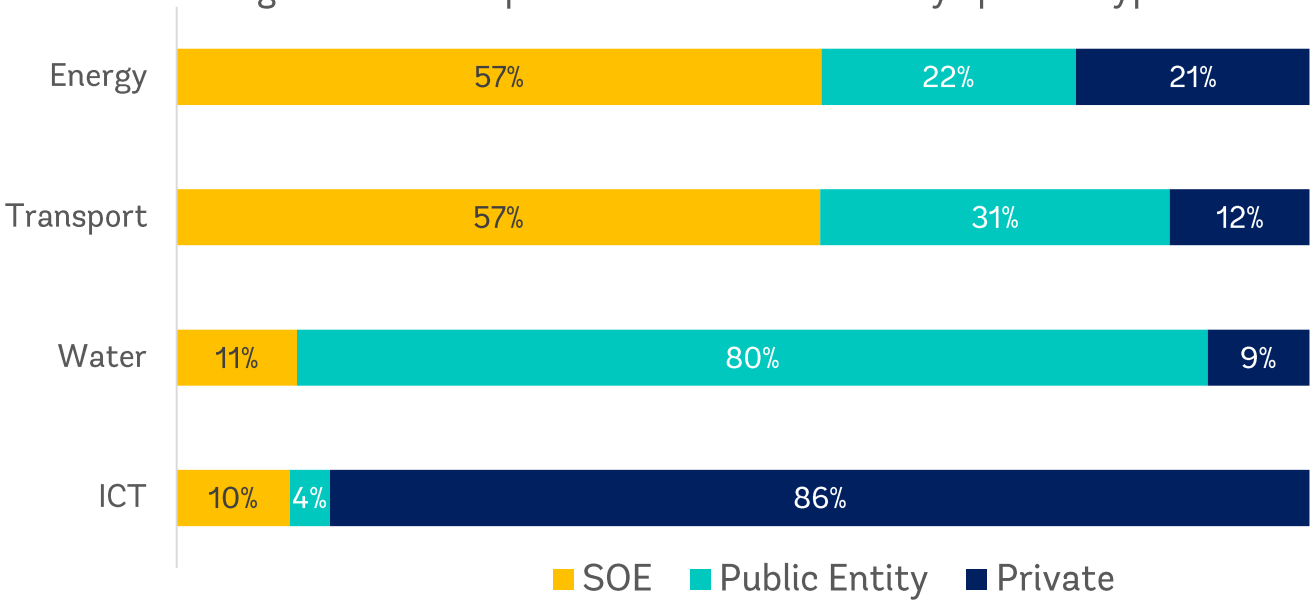


Figure 10: Investments in Energy Sector by region

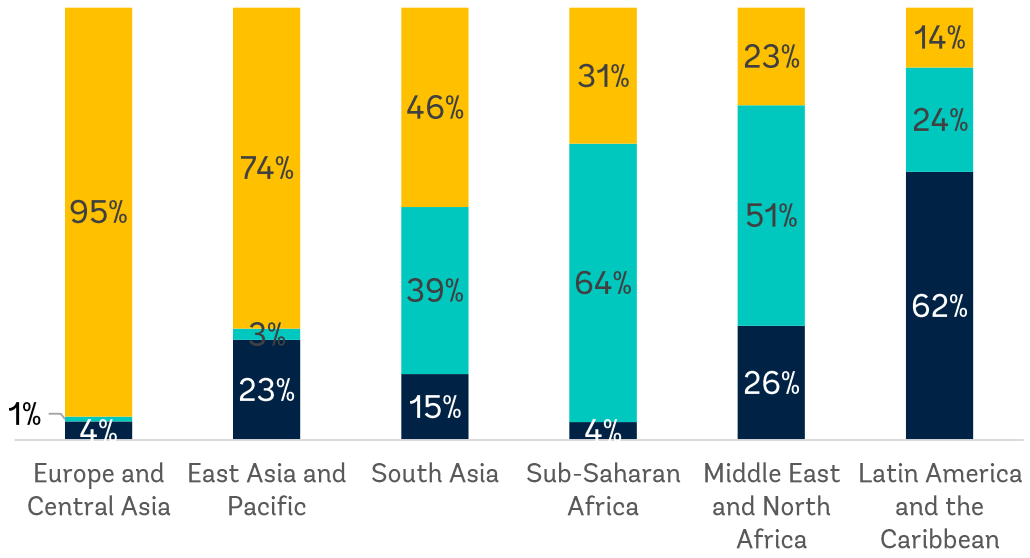
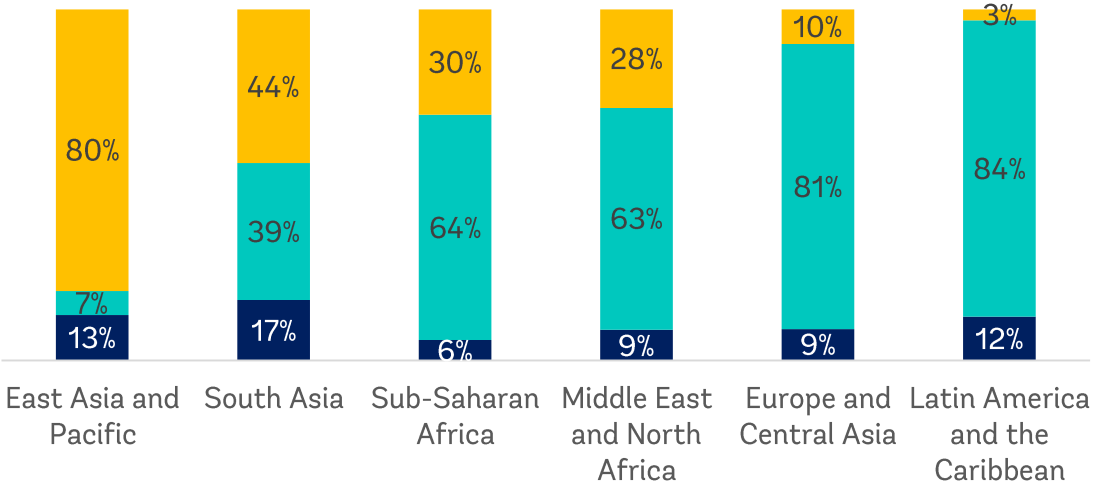


Figure 11: Investments in Transport sector by region



Energy

Across ECA & EAP, SOEs are the primary drivers of Energy investments.
LAC leads in private investments in the Energy sector out of all regions.

Transport

Except EAP and SA, Public Entities lead investments in all regions
Globally, share of SOEs is higher due to large amount of investment from SOEs in EAP region which captures 37% of total transport investment.

ICT

Private sector has dominated ICT investments accounting for 86%.

Water

Public Entities lead investments across all regions.

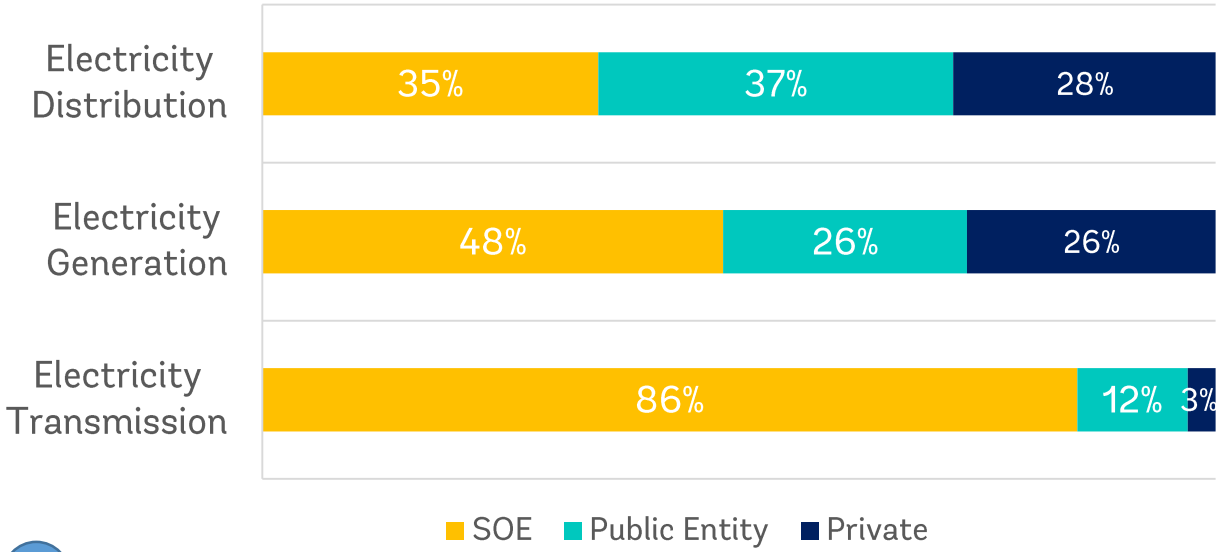
Source: SPI and PPI databases, World Bank, as of August 2018

9.3. Sectoral Investment: Energy

1 SOE Investment is prominent in Transmission whereas Private Investment is mostly seen in Electricity Generation and Distribution.

2 **Private** sector invested in the **maximum no. of generation** projects (196 vis-à-vis 39 and 60 for public and SOE) but the **investment size** is relatively **small** and hence it captures 26% share. But, **private** sector invested in **least no. of distribution** projects (3 compared to 7 and 23 for public and SOE) but **combined investment size** is **large**.

Figure 12: Investments in Energy sector by sponsor type



3 India and China account for 55% of all SOE sponsored Electricity Transmission projects.

Figure 13: Investments in Energy sector by source type

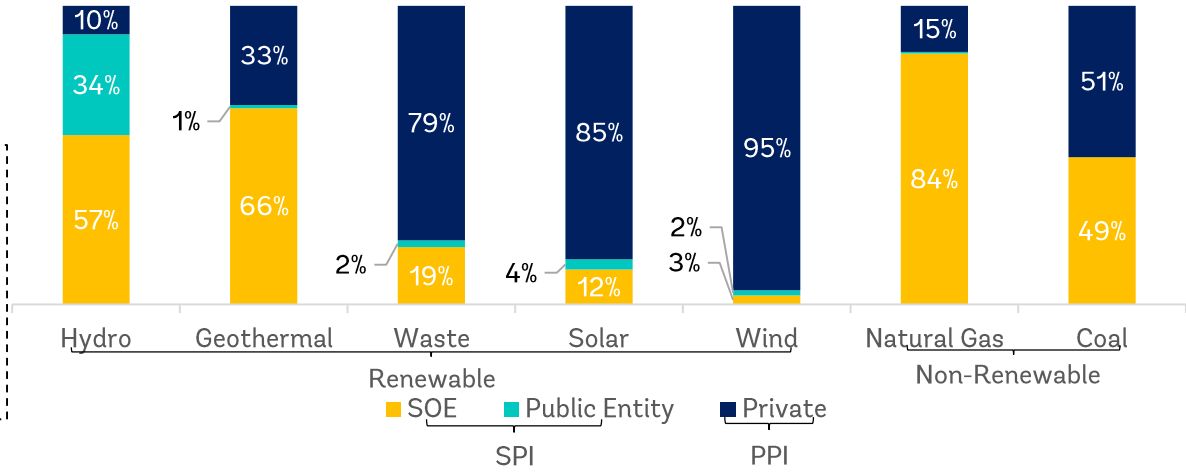
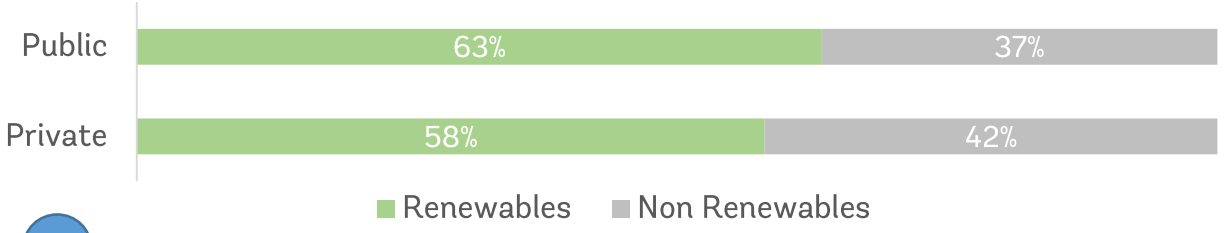


Figure 14: Public and Private Energy sector investments by type



4 SOE/Public investments dominate in Hydropower and Geothermal (R) and in Natural Gas (N.R.).

Whereas PPI Investments are predominant in Solar, Wind and Waste (R).

Total Investments in Renewables outweigh Non-Renewables for both private and SOE/Public Investments.

9.4. Sectoral Investment: Transport

1. **Public/SOE** investments accounted for **3 qtrs. of railway, road and airport projects. Private sector** invested the most in **ports.**

2. **Chinese SOEs'** investment made up **50%** of **total railway investment.**

3. **Private** investment in airports has a small share because the **Mexican government's** investment in **one airport terminal** already represents **44%** of **total airport investment.**

4. **Public/SOE and private** projects in **ECA and SAR** mainly comprised investments in **roads**, while **railways** constituted the majority of investments in **EAP. Egypt's** investment in **one** port represented the whole PPI investment for **MENA.**

Figure 15: Share of SOE, Public and Private investments by transport sub-sector, 2017

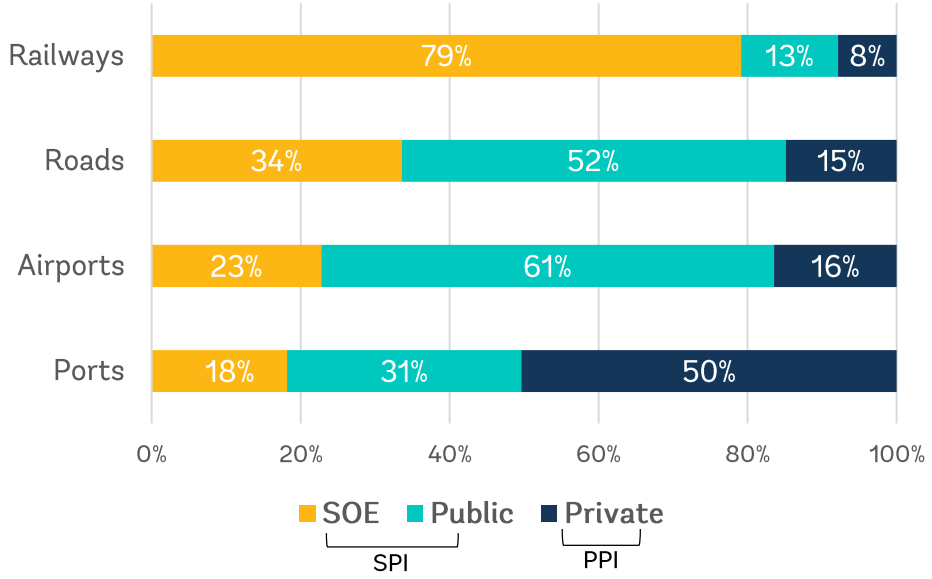
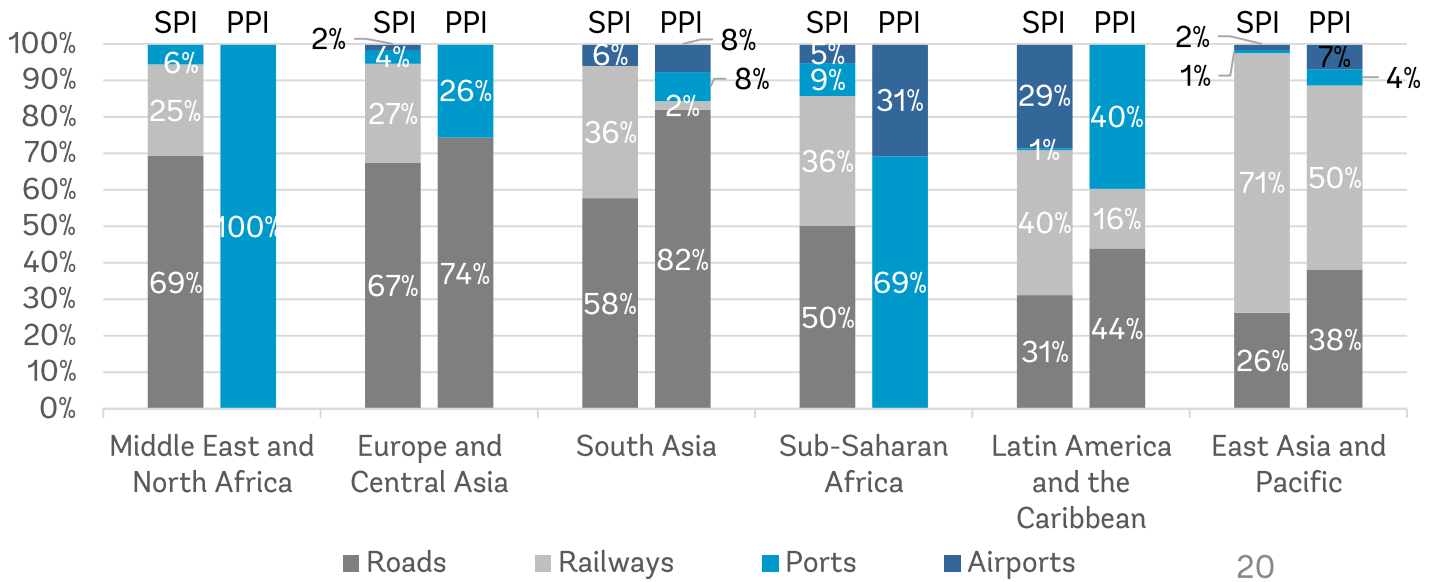


Figure 16: Transport sub-sector share of public/SOE and private investments by region, 2017



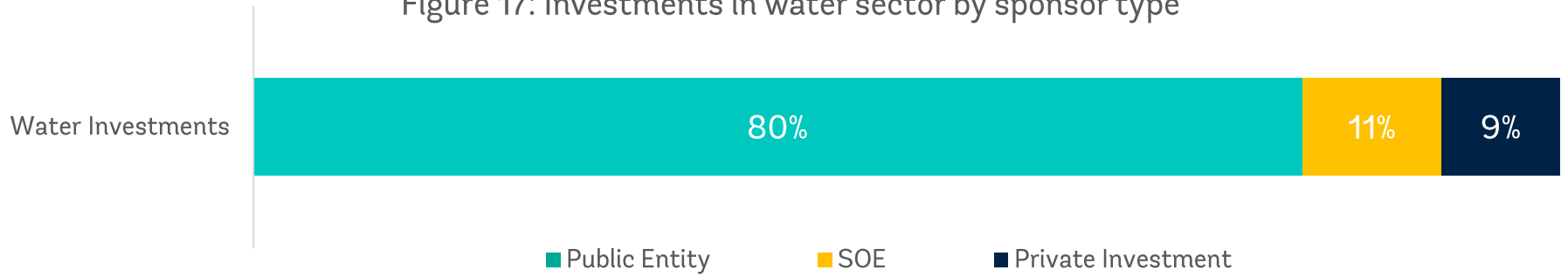
Source: SPI and PPI databases, World Bank, as of August 2018

9.5. Sectoral Investment: Water

1

Public investment (91%) is dominant in Water Infrastructure including Utility and Treatment Plants.

Figure 17: Investments in water sector by sponsor type



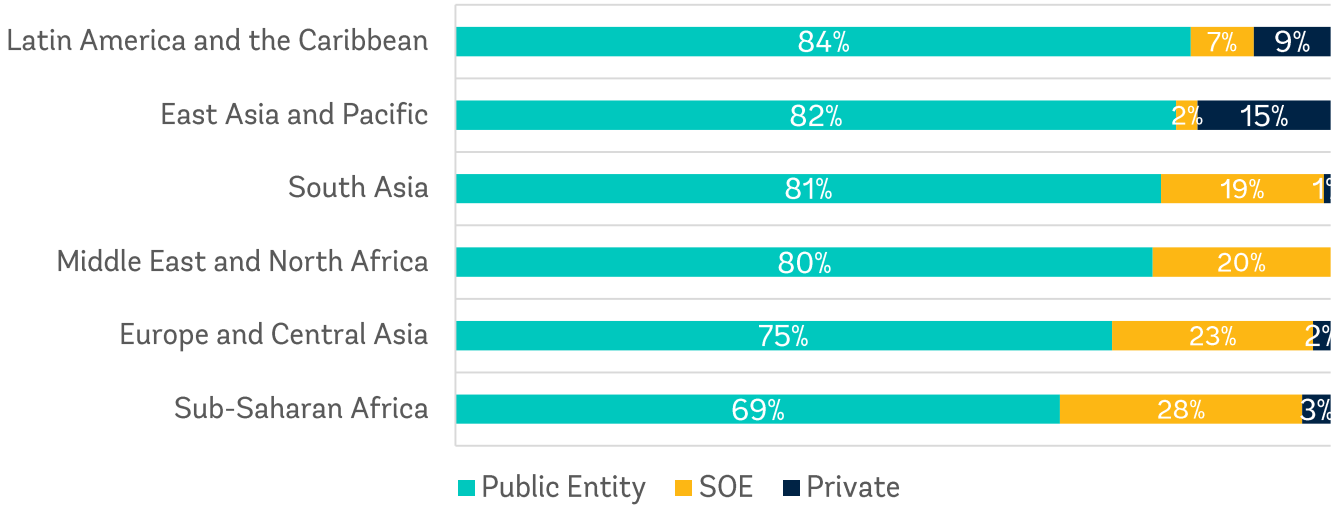
Source: SPI and PPI databases, World Bank, as of August 2018

2

Public entities are at the helm of Water sector projects due to high input costs and long or no cost recovery which makes it non-profitable for the Private sector.

Cost-recovery tariffs are rarely seen in Water sector hence making it primarily a public-serviced good.

Figure 18: SPI and PPI investments in water utility and treatment



Source: SPI and PPI databases, World Bank, as of August 2018

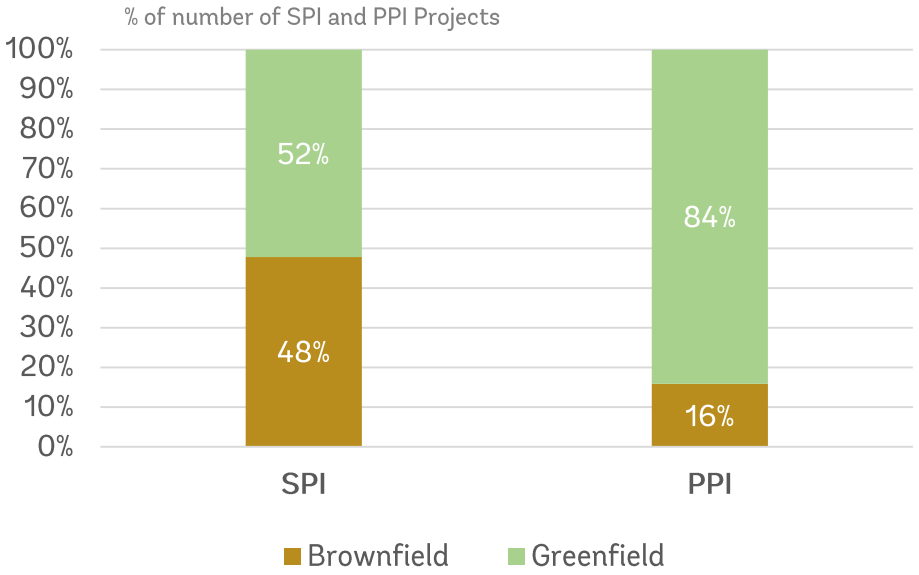
10. Project Type Analysis (Greenfield v/s Brownfield)

1 **Public/SOEs** invested almost equally in both greenfield **(52%)** and brownfield **(48%)** projects. **The private sector**, on the other hand, carried out **more greenfield** projects especially for **energy (64% of total privately invested projects)** as the **construction** phase is **short** and they can **recoup** their investment **quickly**.

2 **ECA** utilized public/SOE investment more in brownfield projects **(542)** than **other regions combined**. (**59%** of **total** brownfield projects). **54%** of the ECA brownfield projects were **Russia's.**

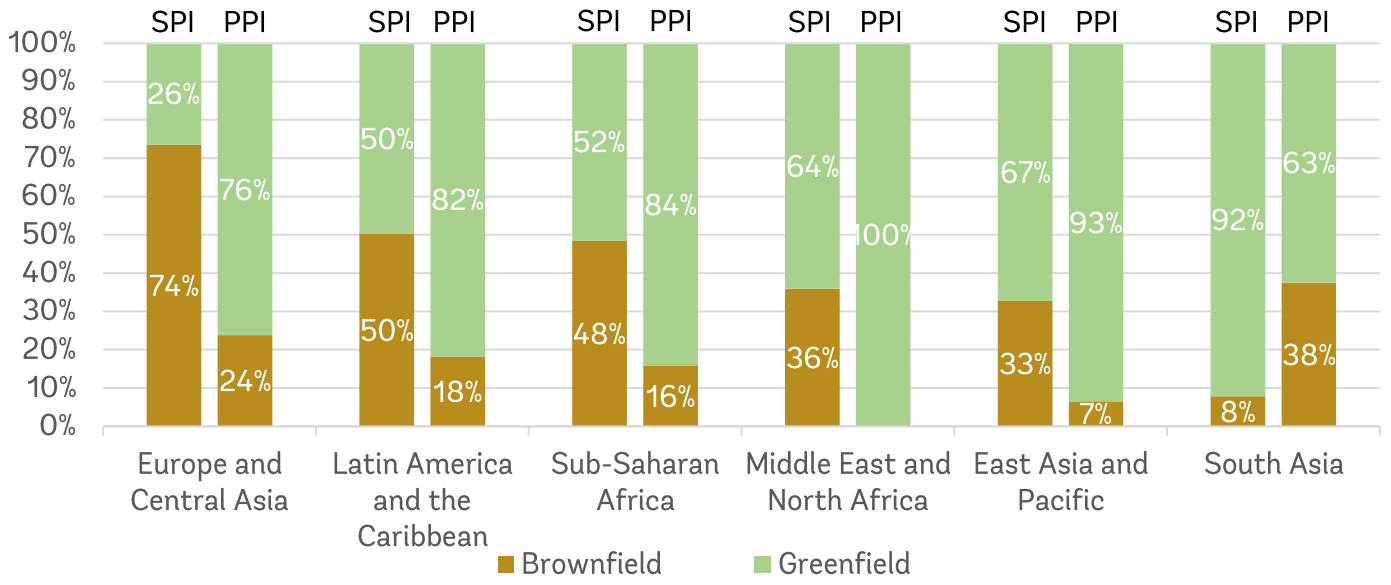
3 **SAR** had the largest number of **greenfield SPI** projects among all the regions, **94%** of which were based in **India.** The SAR projects constituted **39%** of **total greenfield SPI** projects.

Figure 19: Share of brownfield and greenfield projects for SPI and PPI projects, 2017



Source: SPI and PPI databases, World Bank, as of August 2018

Figure 20: Numbers of greenfield and brownfield projects for SPI and PPI investment by region, 2017



Source: SPI and PPI databases, World Bank, as of August 2018

11.1. Financing: Overview

1. **DFIs i.e.** multilaterals and bilaterals contributed **equally** to both **public/SOE** and **private** investments as a share of total investment, but in absolute amount, DFIs contributed more to **public/SOE projects.**

2. **Public/SOE investments** were mainly **equity** financed, whereas **private investments** were mostly **debt** financed.

3. **Public/SOE** projects raised more debt from **DFIs** because governments have better access to DFI loans which are also priced lower. **Private** projects relied more on **commercial** debt.

Figure 22: Sources of financing for **SPI investment**, 2017

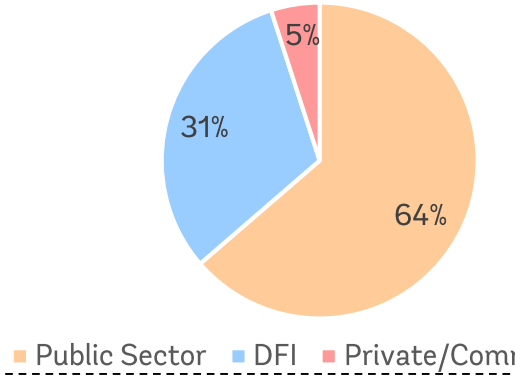


Figure 23: Sources of financing for **PPI investment**, 2017

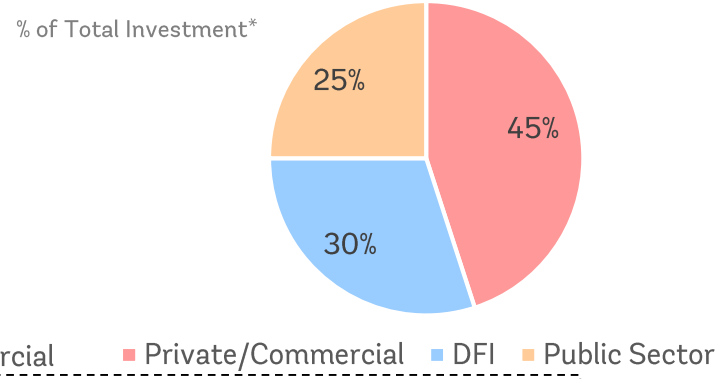


Figure 21: Share of debt and equity for SPI and PPI financing, 2017

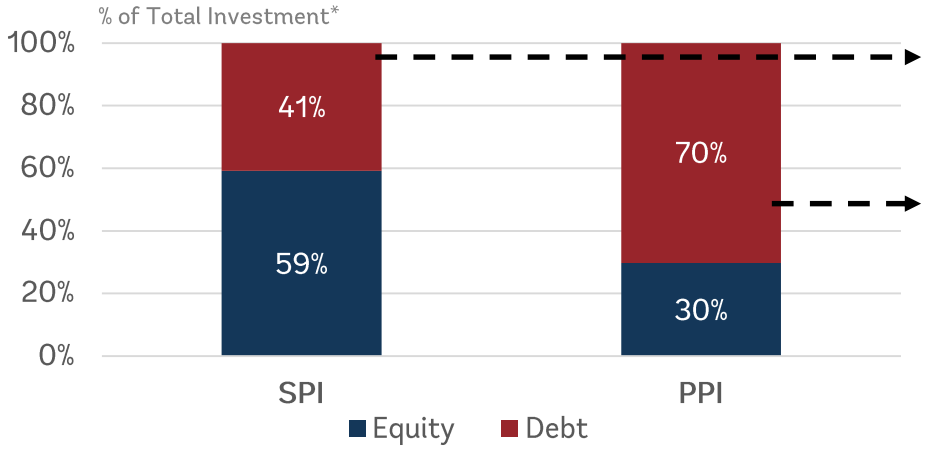
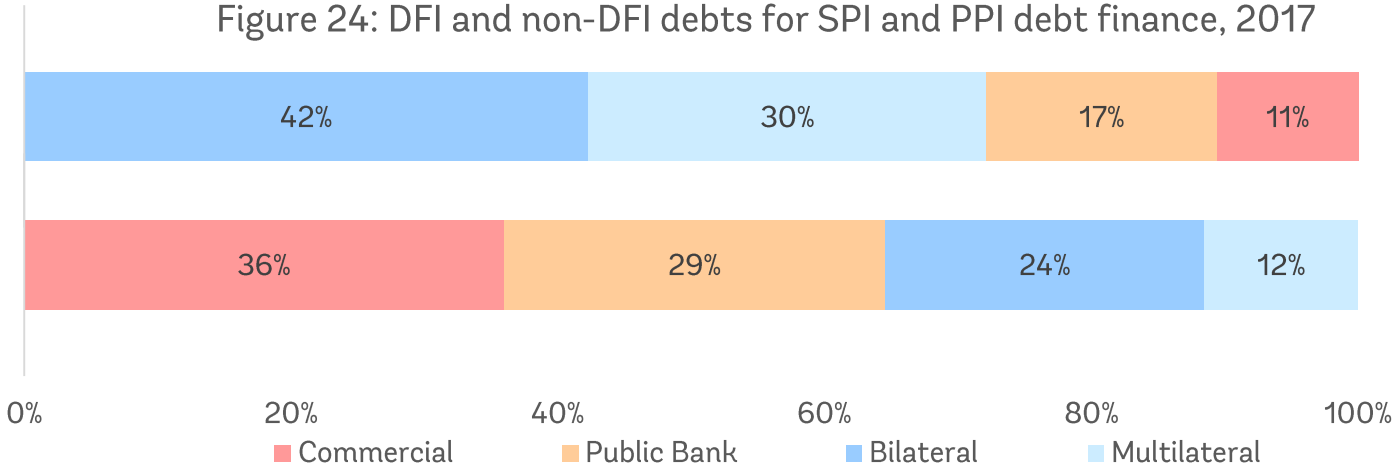


Figure 24: DFI and non-DFI debts for SPI and PPI debt finance, 2017



Source: SPI and PPI databases, World Bank, as of August 2018

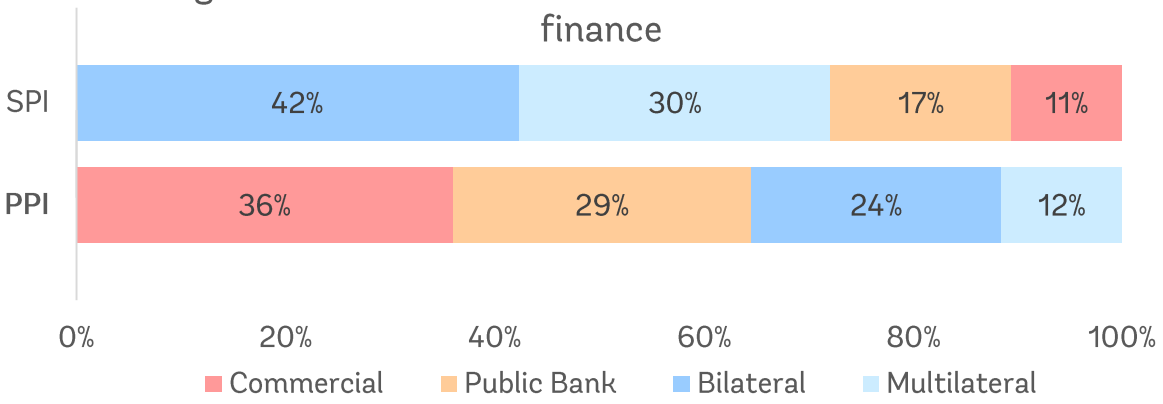
* All subsequent slides on financing are based on available financing information from 98% of total number of projects (2,066 out of 2,111)

11.2. Debt Type: Regional and Sectoral Analysis

1 **ECA** was able to attract **44%** of their **debt** finance from **commercial banks** for their **public/SOE** investment. **MENA** and **LAC did not** raise any **commercial debt** for their **public/SOE** investment.

2 **Public/SOE** projects managed to attract the **largest amount of commercial debt (16%)** for **energy** projects. **Two natural gas transmission** projects in **ECA** constituted **71%** of the **commercial debt raised.**

Figure 25: DFI and non-DFI debts for SPI and PPI debt finance



*Based on available debt financing information from 98% of total number of projects (2,027 out of 2,058)

Figure 26: Share of debt for SPI debt finance by region

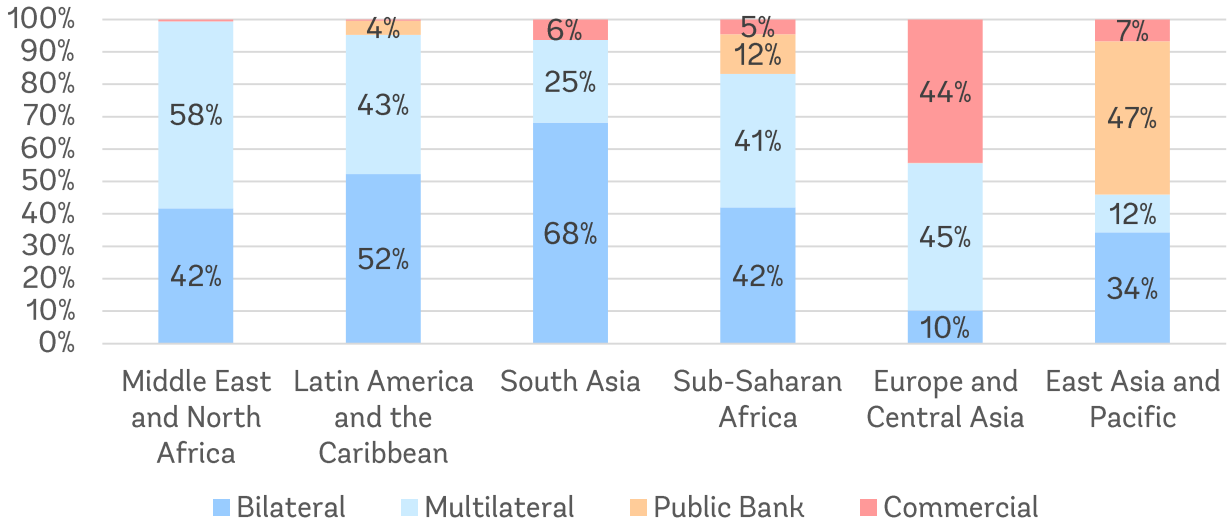
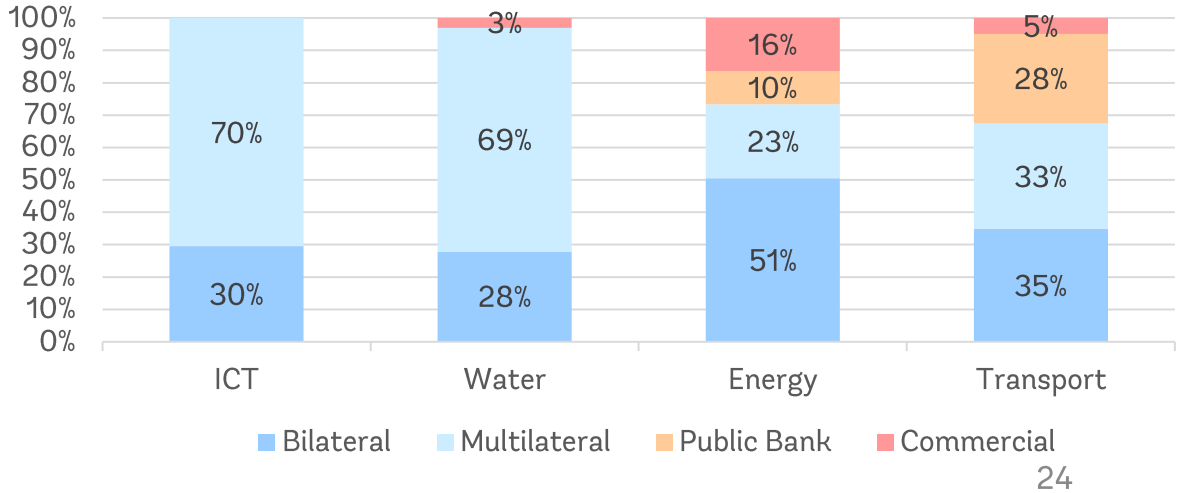


Figure 27: Share of debt type for SPI debt finance by sector



Source: SPI and PPI databases, World Bank, as of August 2018

11.3. Debt Type: International and Local Debt

1. **International debt** accounted for **three quarters** of total debt financing for both SPI and PPI investments.

2. **EAP** raised a significant portion of their **public/SOE debt locally, 98%** of which was for **public/SOE investments in China.**

3. **LAC** and **SAR** are the only other regions where **a portion** of their **public/SOE debt financing** was **local.**

Figure 28: Share of international and local debt for SPI and PPI debt finance, 2017

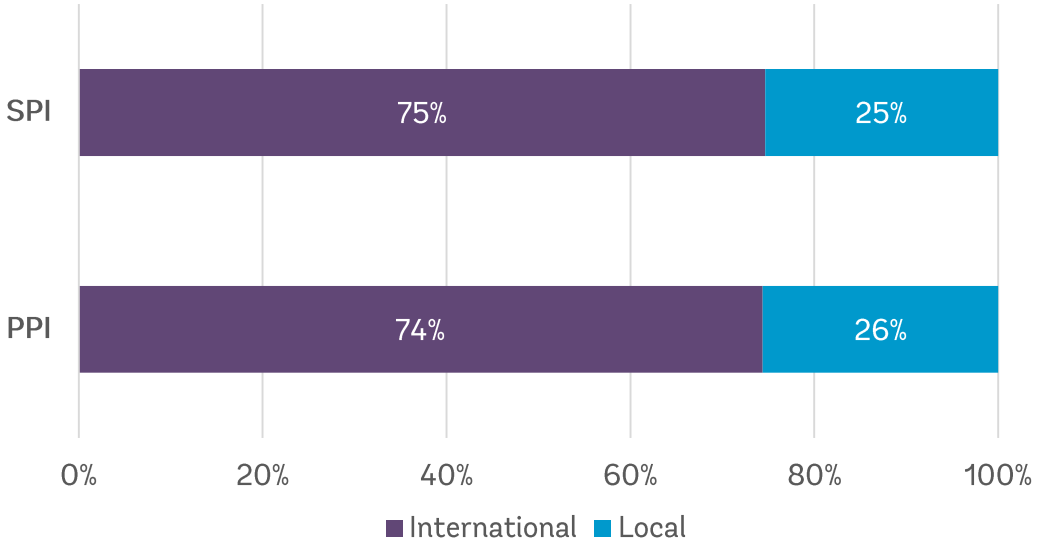
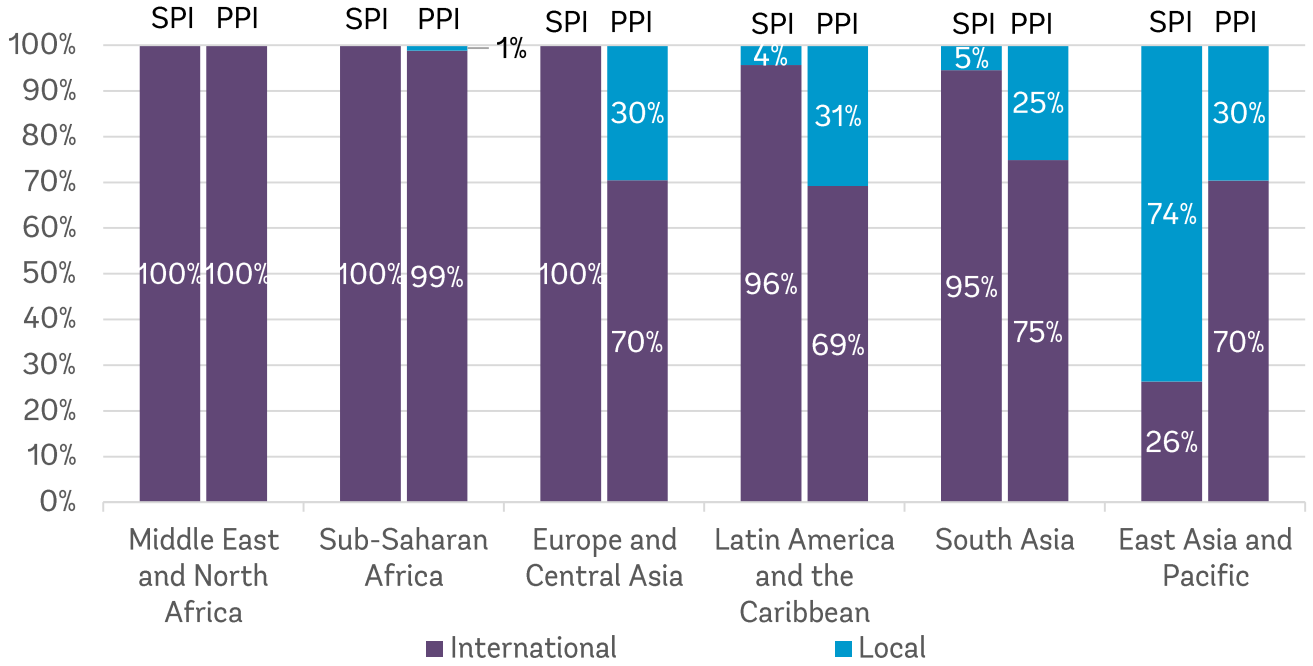


Figure 29: Share of international and local debt for SPI and PPI debt finance by region, 2017



Source: SPI and PPI databases, World Bank, as of August 2018

12. Government Granting Entity Analysis

1. **Overall,** both public/SOE and private investments were more prevalent at the **national** level, constituting **more than 3 qtrs.** of total investment.

2. **50%** of **public/SOE** projects was under **state governments'** authority, whereas **more than half** of the **private** projects were granted by **national governments.**

3. **23% of private** projects was at **municipal** level but as a **share of total private investment,** they only constituted **8%.** This is because there were many **small projects** with relatively **low investment** amounts.

Figure 30: Share of SPI and PPI investments by government granting entity, 2017

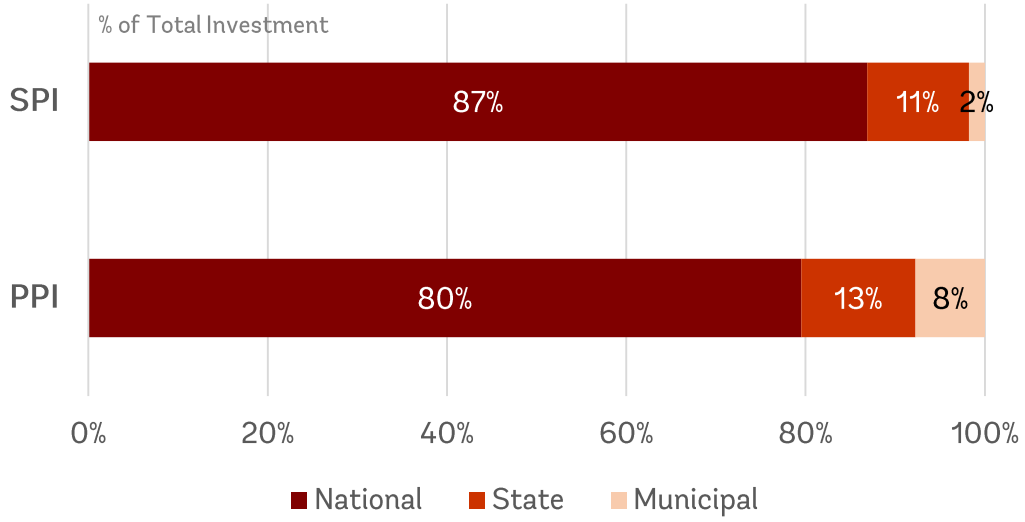
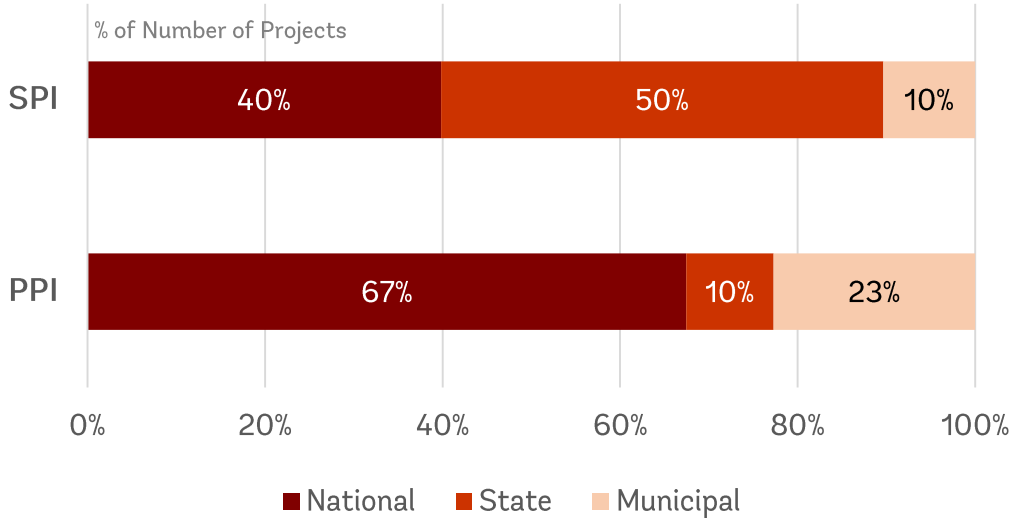


Figure 31: Share of SPI and PPI projects by government granting entity, 2017



Source: SPI and PPI databases, World Bank, as of August 2018

Thank you

WORLD BANK GROUP