# Growth and Inequality:
## The Role of Public Investment in Vietnam

**Tran Thu Thuy**
Visiting scholar, Policy Research Institute
Ministry of Finance, Japan

# Main contents

- Overview of economic growth, income inequality and public investment in Vietnam

- Empirical assessment on whether public investment is an effective policy to foster economic growth and reduce inequality in Vietnam

- Context and challenges in meeting the needs of public investment

- Discussion on the promotion of PPPs in Vietnam as a solution to overcome these challenges and lessons should be learnt from Japan

# Motivation

**Growth and inequality trade-off:**

▪ Theoretical perspectives: High inequality may lead to more redistributive policies, which are supposed to be economically inefficient

▪ Empirical evidence: Trade-off between growth and inequality may exist, but it could be tackled by public investment (Muinelo and Roca-Sagalés, 2011; Muinelo and Roca-Sagalés, 2014; Ostry, Berg and Tsangarides, 2014; Fournier and Johansson, 2016)

**Vietnam's situation:**

▪ High economic growth tends to go along with an increase in income inequality in some aspects

▪ Public spendings have concentrated on the goals of ensuring social security and promoting economic development

▪ It is necessary to evaluate the effectiveness of public investment on simultaneously realizing the goals of growth and equality
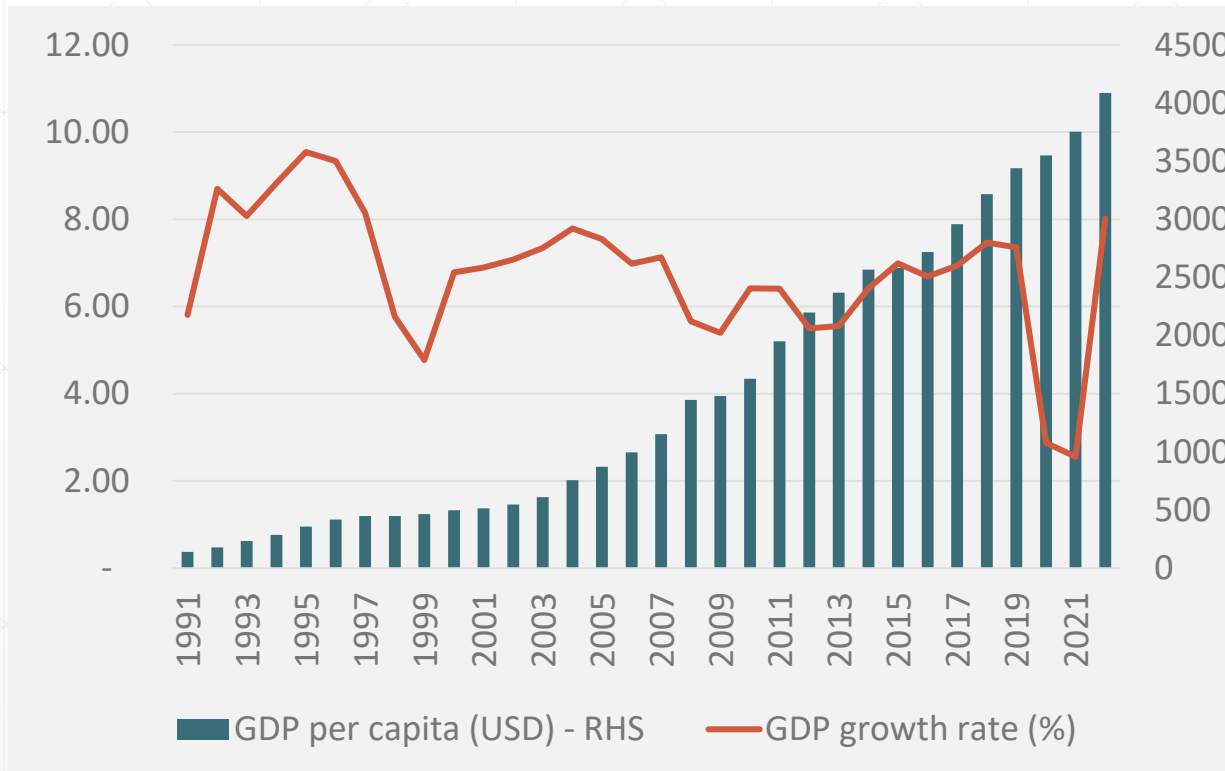
# Why does public investment matter to economic growth and inequality?
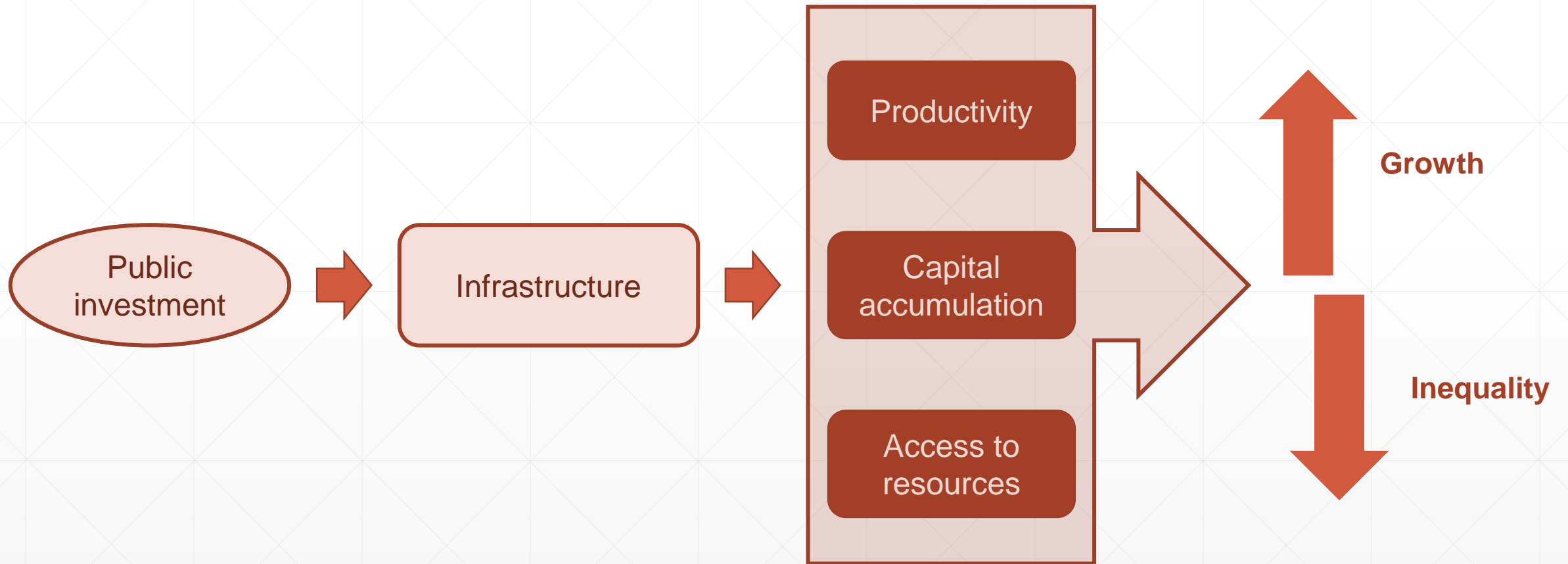
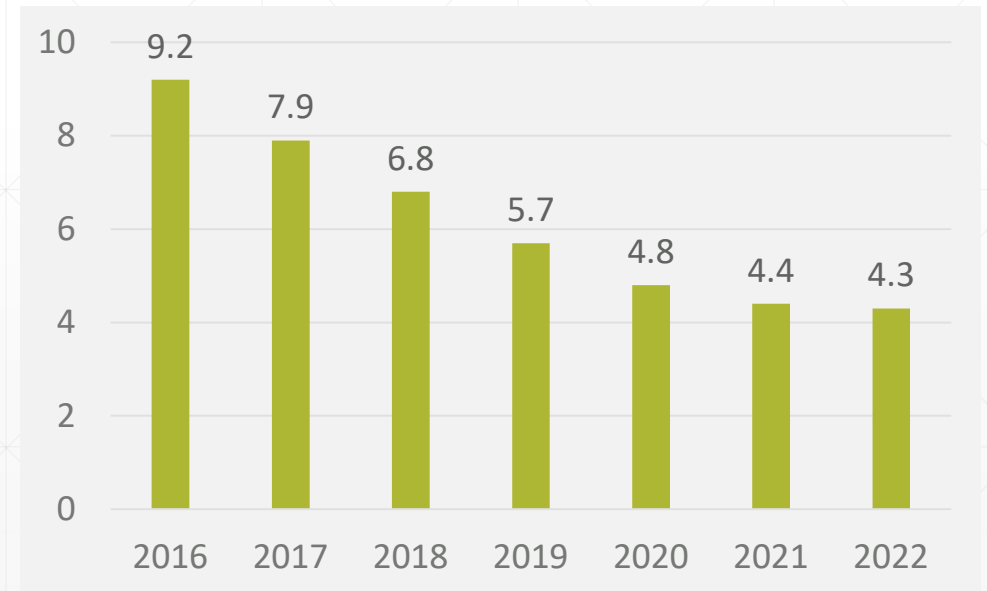# Overview of Growth, Inequality and Public Investment in Vietnam

# High economic growth has contributed to improvements in income and people's living

### Vietnam's economic growth and GDP per capita



Source: General Statistics Office of Vietnam and IMF (WEO, 10/20203)

- Average GDP growth rate in the past decade: 6%
- Vietnam became a middle-income country in 2011
- GDP per capital in 2022: 4,068 USD

### Poverty rate in Vietnam



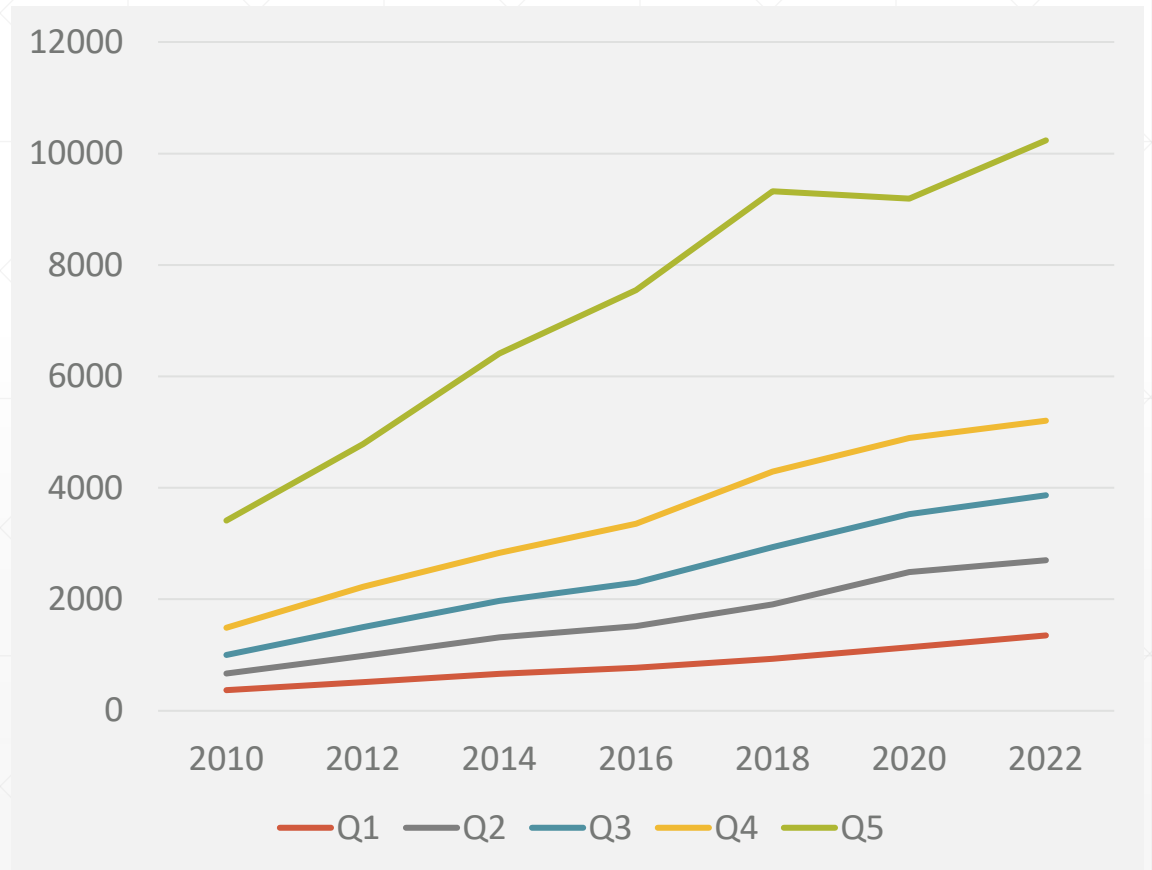Note: Poverty rate is measured according to multi-dimensional poverty standard

# Inequality is higher in areas with less favorable economic conditions and has tended to increase

Vietnam's inequality measured by GINI, average 2012-2022
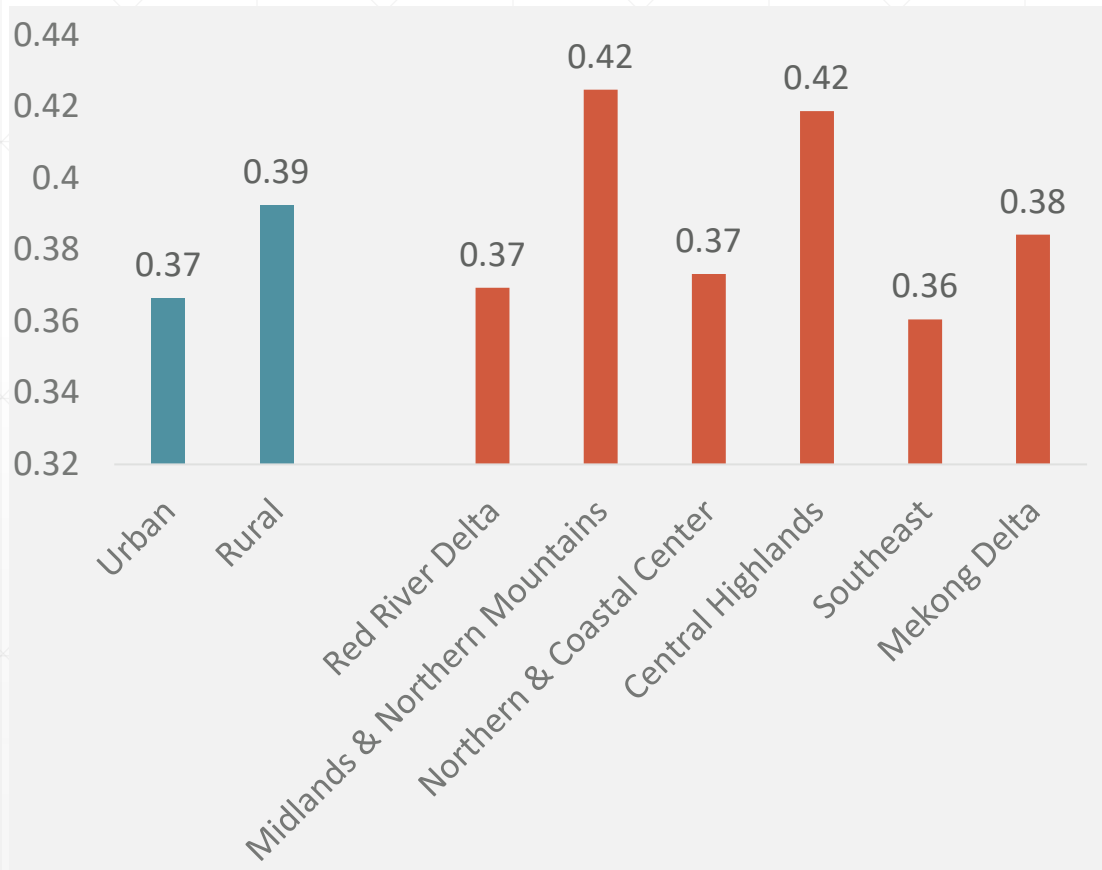
Average income per capita per month by quintile

# Public investment is an important policy to promote economic development

## Government spendings by component, average 2012-2022



- Debt repayment, 14.26
- Healthcare, 4.08
- Education, 13.65
- Social security, 8.16
- Other current spendings, 34.62
- Investment, 25.22
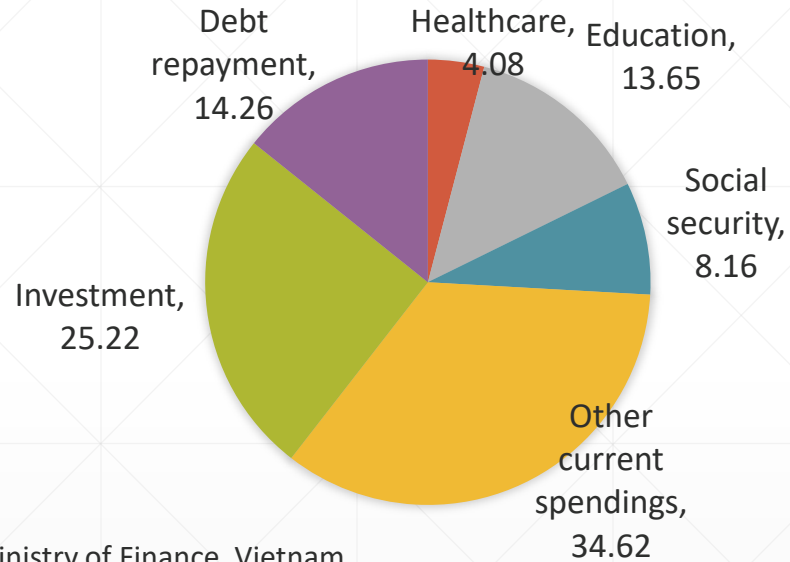
Source: Ministry of Finance, Vietnam

**Government investment: 7.6% of GDP in the past decade**

**Contribution of public sector:**

≈ **37%** of total investment in the economy

**2/3** of investment in economic infrastructure

**70-80%** of investment in education and healthcare

## Government investment allocation by locality and GDP growth, average 2015-2021



GDP growth

Government investment per capita
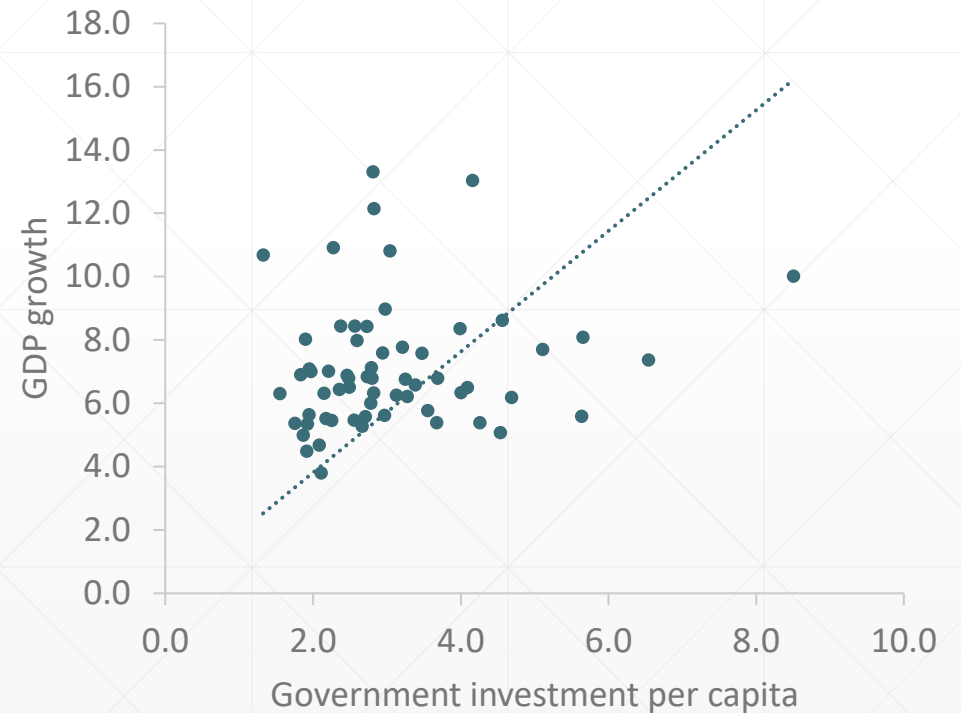
Source: General Statistics Office of Vietnam and author's calculation

# Allocation of state budget focuses on ensuring social security

- Criteria for state budget allocation give priority to poor areas (such as mountainous areas, border areas, islands, ethnic minority areas, and disadvantaged and extremely difficult areas)

- Localities with higher poverty rate often receive larger government investment allocations

**BUT** high growth has been accompanied by rising inequality in recent years

**Is public investment effective in promoting growth and reducing inequality?**

**Government investment allocation by locality and poverty rate, average 2015-2021**



Source: General Statistics Office of Vietnam and author's calculation

# Empirical assessment
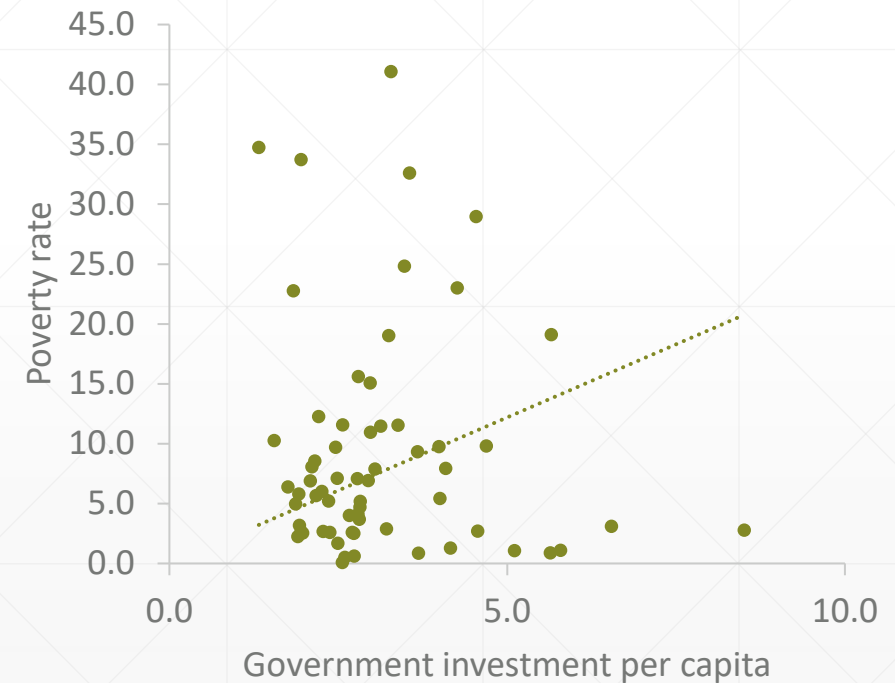
# Methodology (1)

- Impacts of public investment on economic growth and income inequality are empirically investigated by regressing reduced-form equations:

### Growth equations:

Short run: $GROWTH_{t,i} = \alpha_{t,i} + \beta PUBLIC\_INVESTMENT_{t-2,i} + \theta Z_{t-2,i} + u_{t,i}$ (1)

Medium run: $\overline{GROWTH}_{(t,t+5),i} = \alpha_i + \beta PUBLIC\_INVESTMENT_{t,i} + \theta Z_{t,i} + u_{t,i}$ (2)

### Inequality equations:

Short run: $INEQUALITY_{t,i} = \gamma_{t,i} + \lambda PUBLIC\_INVESTMENT_{t-2,i} + \omega S_{t-2,i} + e_{t,i}$ (3)

Medium run: $\overline{INEQUALITY}_{(t,t+5),i} = \gamma_i + \lambda PUBLIC\_INVESTMENT_{t,i} + \omega S_{t,i} + e_{t,i}$ (4)

- Data of Vietnam's 63 provinces in the period of 2015-2022 is obtained from the source of General Statistics Office, Vietnam

- Forms of panel data estimators: Fixed effects (Hausman test indicates that fixed effects models are better off being used)

# Methodology (2)

**Baseline estimation**

Public investment is the only policy variable

**Extended estimation**

There are 3 policy variables:
- Public investment
- Redistributive current spendings
- Non-redistributive current spendings

Compare the roles of public investment and current expenditures

Redistributive effects of public investment and current expenditures by income quintile

# Main variables

| | |
|---|---|
| PUBLIC_INVESTMENT | ▪ **GOV_INV**: Local government investment as percentage of GDP <br> ▪ **INV_PUB**: Investment of State sector as percentage of GDP <br> $\qquad$ INV_PUB = GOV_INV + INV_PUB_OT <br> (INV_PUB_OT: Investment of SOEs and central government in localities) |
| GROWTH | **GDP_G**: Annual percentage change in gross regional domestic product at constant price |
| INEQUALITY | ▪ **GINI**: GINI index <br> ▪ **Q5/Q1**: Ratio of the richest income quintile divided by the poorest one <br> ▪ **LOW_INC**: Share of the 2 lowest income quintiles in income distribution (Ratio of 40%) |

# Control variables

| Variables | Definition | Growth equations (S) | Inequality equations (Z) |
|---|---|:---:|:---:|
| GDP_G | Growth rate of gross regional domestic product at constant price (%) | | ✓ |
| GINI | GINI index | ✓ | |
| LGDP_C | Gross regional domestic product at constant price in log form | ✓ | ✓ |
| INV_OT | Investment of private sector and FDI as percentage of GDP | ✓ | |
| LAB_G | Growth rate of labor force (%) | ✓ | |
| T_LAB | Ratio of trained labor as percentage of labor force (it is used as a proxy for education) | ✓ | ✓ |
| URBAN | Ratio of urbanization (measured by the share of urban in total population) | ✓ | ✓ |
| **Extended estimation** | | | |
| GOV_HUM | Government current spendings on social security, education and healthcare as percentage of GDP (redistributive current spendings) | ✓ | ✓ |
| GOV_OT | Other government current spendings as percentage of GDP (non-redistributive current spendings) | ✓ | ✓ |

# Baseline estimation of growth equations (FEM)

| Measure of public investment | GOV_INV | | INV_PUB | |
|---|---|---|---|---|
| Time of effects | Short run | Medium run | Short run | Medium run |
| **PUBLIC_INVESTMENT** | **0.1622** | **0.0726** | **0.1064** | **0.0740** |
| | **(1.6800)*** | **(1.7800)*** | **(2.6700)**** | **(2.5400)**** |
| LGDP_C | -14.6183 | -4.7725 | -13.3103 | -3.4472 |
| | (-3.2100)** | (-3.4600)** | (-2.9100)** | (-2.9300)** |
| GINI | -0.0477 | -0.1015 | -0.0325 | -0.1007 |
| | (-0.7300) | (-1.4800) | (-0.5000) | (-1.4500) |
| INV_OT | 0.0352 | -0.0013 | 0.0415 | -0.0005 |
| | (1.9100)* | (-0.0900) | (2.5300)** | (-0.0300) |
| LAB_G | 0.0894 | 0.0127 | 0.0841 | 0.0262 |
| | (1.3100) | (0.2300) | (1.3000) | (0.5300) |
| T_LAB | 0.1672 | -0.1183 | 0.1314 | -0.1077 |
| | (1.5700) | (-2.0800)** | (1.2100) | (-1.9700)* |
| URBAN | 0.0831 | 0.8331 | 0.0706 | 0.8762 |
| | (1.0600) | (4.4300)** | (0.9100) | (4.7900)** |

Note: Values in parentheses are t-statistics; ** and * indicate 5% and 10% significance, respectively

# Baseline estimation of inequality equation in short run (FEM)

| Measure of public investment | GOV_INV | | | INV_PUB | | |
|---|---|---|---|---|---|---|
| Measure of inequality | GINI | Q5/Q1 | LOW_INC | GINI | Q5/Q1 | LOW_INC |
| **PUBLIC_INVESTMENT** | **0.1828** | **0.0582** | **-0.0743** | **-0.0492** | **-0.0110** | **0.0026** |
| | **(1.3200)** | **(1.3200)** | **(-1.1300)** | **(-0.6800)** | **(-0.5900)** | **(0.0700)** |
| LGDP_C | -0.0389 | -1.2855 | 1.6521 | -1.3706 | -1.6379 | 1.9275 |
| | (-0.0100) | (-0.9600) | (0.8200) | (-0.3200) | (-1.1600) | (0.9000) |
| GDP_G | -0.1085 | -0.0335 | 0.0429 | -0.0990 | -0.0304 | 0.0390 |
| | (-1.5300) | (-1.1400) | (1.2500) | (-1.4600) | (-1.0700) | (1.1800) |
| T_LAB | -0.0132 | -0.0274 | -0.0009 | -0.0341 | -0.0348 | 0.0105 |
| | (-0.0900) | (-0.5300) | (-0.0100) | (-0.2500) | (-0.6600) | (0.1600) |
| URBAN | 0.0416 | 0.0397 | -0.0372 | 0.0428 | 0.0397 | -0.0361 |
| | (0.5300) | (1.3900) | (-0.9900) | (0.5300) | (1.3800) | (-0.9500) |

Note: Values in parentheses are t-statistics; ** and * indicate 5% and 10% significance, respectively

# Baseline estimation of inequality equation in medium run (FEM)

| Measure of public investment | GOV_INV | | | INV_PUB | | |
|---|---|---|---|---|---|---|
| **Measure of inequality** | **GINI** | **Q5/Q1** | **LOW_INC** | **GINI** | **Q5/Q1** | **LOW_INC** |
| **PUBLIC_INVESTMENT** | **-0.2506** | **-0.1074** | **0.1063** | **-0.0335** | **-0.0032** | **0.0127** |
| | **(-4.7800)**\*\* | **(-3.3300)**\*\* | **(4.0100)**\*\* | **(-0.8300)** | **(-0.2300)** | **(0.6400)** |
| LGDP_C | -4.6270 | -0.9611 | 1.9129 | -5.5030 | -1.1426 | 2.2581 |
| | (-2.8000)** | (-2.0000)** | (2.4900)** | (-3.1300)** | (-2.1200)** | (2.7200)** |
| GDP_G | 0.0184 | 0.0077 | -0.0070 | 0.0123 | 0.0061 | -0.0045 |
| | (1.2500) | (1.5000) | (-1.0300) | (0.8800) | (1.2200) | (-0.7200) |
| T_LAB | -0.1200 | -0.0283 | 0.0729 | -0.1202 | -0.0272 | 0.0728 |
| | (-1.2500) | (-1.0800) | (1.7200)* | (-1.0800) | (-0.8400) | (1.5100) |
| URBAN | -0.5315 | -0.0848 | 0.2241 | -0.6282 | -0.1230 | 0.2646 |
| | (-1.6500) | (-0.6300) | (1.5900) | (-1.6900)* | (-0.7800) | (1.6200) |

Note: Values in parentheses are t-statistics; ** and * indicate 5% and 10% significance, respectively

# Extended estimation of growth equations (FEM)

|  |  | Short run | Medium run |
|---|---|---|---|
| **Public investment** | **INV_PUB** | **0.0984** | **0.0732** |
|  |  | **(2.3900)\*\*** | **(2.6300)\*\*** |
| **Redistributive current spendings** | **GOV_HUM** | **0.0121** | **0.0726** |
|  |  | **(0.2000)** | **(1.8500)\*** |
| **Non-redistributive current spendings** | **GOV_OT** | **0.1278** | **-0.0876** |
|  |  | **(0.7900)** | **(-1.0600)** |
|  | INV_OT | 0.0401 | 0.0000 |
|  |  | (2.4300)\*\* | (0.0000)\*\* |
|  | LGDP_C | -12.6631 | -2.8891 |
|  |  | (-2.7100)\*\* | (-2.7600)\*\* |
|  | GINI | -0.0241 | -0.0868 |
|  |  | (-0.3600) | (-1.1400) |
|  | LAB_G | 0.0955 | 0.0500 |
|  |  | (1.5300) | (1.1500) |
|  | T_LAB | 0.1441 | -0.0812 |
|  |  | (1.3500) | (-1.5200) |
|  | URBAN | 0.0735 | 0.9051 |
|  |  | (0.9400) | (4.4100)\*\* |

Note: Values in parentheses are t-statistics; \*\* and \* indicate 5% and 10% significance, respectively

# Extended estimation of inequality equation in medium run (FEM)

| | Measure of inequality | GINI | Q5/Q1 | LOW_INC |
|---|---|---|---|---|
| **Public investment** | **GOV_INV** | **-0.1548** | **-0.0509** | **0.0519** |
| | | **(-2.1600)\*\*** | **(-2.4600)\*\*** | **(1.7200)\*** |
| **Redistributive current spendings** | **GOV_HUM** | **-0.1399** | **-0.0750** | **0.0584** |
| | | **(-2.8200)\*\*** | **(-5.7100)\*\*** | **(2.6900)\*\*** |
| **Non-redistributive current spendings** | **GOV_ OT** | **0.2617** | **0.1282** | **-0.0743** |
| | | **(2.5200)\*\*** | **(2.8700)\*\*** | **(-1.3400)** |
| | LGDP_C | -5.6660 | -1.5773 | 2.5155 |
| | | (-3.3400)\*\* | (-3.5600)\*\* | (3.0600)\*\* |
| | GDP_G | 0.0115 | 0.0039 | -0.0038 |
| | | (0.7800) | (0.9200) | (-0.5600) |
| | T_LAB | -0.1479 | -0.0446 | 0.0884 |
| | | (-1.4700) | (-1.6300) | (2.0400)\*\* |
| | URBAN | -0.6447 | -0.1447 | 0.2690 |
| | | (-2.0500)\*\* | (-1.2700) | (2.0200)\*\* |

Note: Values in parentheses are t-statistics; \*\* and \* indicate 5% and 10% significance, respectively

# Redistributive effects of public investment in income groups

| | Income quintile | Q1 | Q2 | Q3 | Q4 | Q5 |
|---|---|---|---|---|---|---|
| **Public investment** | **GOV_INV** | **0.0217** | **0.0496** | **0.0609** | **0.0331** | **-0.1652** |
| | | **(1.0200)** | **(1.8900)*** | **(2.2400)**** | **(1.3700)** | **(-2.1900)**** |
| **Redistributive current spendings** | **GOV_HUM** | **0.0364** | **0.0258** | **0.0272** | **0.0134** | **-0.1028** |
| | | **(2.6300)**** | **(1.6100)** | **(1.4600)** | **(0.9800)** | **(-2.0300)**** |
| **Non-redistributive current spendings** | **GOV_OT** | **-0.0537** | **-0.0314** | **-0.0626** | **-0.0734** | **0.2211** |
| | | **(-1.4400)** | **(-1.0600)** | **(-1.2900)** | **(-1.5900)** | **(1.8500)*** |
| | LGDP_C | 0.8316 | 1.4619 | 1.7078 | 1.6399 | -5.6412 |
| | | (2.2800)** | (3.0400)** | (4.1100)** | (3.3700)** | (-3.9500)** |
| | GDP_G | 0.0056 | -0.0032 | -0.0075 | -0.0042 | 0.0093 |
| | | (1.6000) | (-0.6700) | (-1.5900) | (-0.7600) | (0.6800) |
| | T_LAB | 0.0526 | 0.0769 | 0.0401 | -0.0121 | -0.1574 |
| | | (1.9500)* | (2.4500)** | (1.0700) | (-0.4000) | (-1.5200) |
| | URBAN | 0.0115 | 0.1038 | 0.1886 | 0.1351 | -0.4390 |
| | | (0.1300) | (1.2500) | (1.7000)* | (0.7700) | (-1.2000) |

Note: Values in parentheses are t-statistics; ** and * indicate 5% and 10% significance, respectively

# Highlights of main findings and implications

## Main findings

| Policies | Growth | Inequality |
|---|---|---|
| **Public investment** | | |
| Government investment | + (short and medium runs) | - (medium run) |
| State investment | + (short and medium runs) | 0 |
| **Current expenditures** | | |
| Redistributive expenditures | + (medium run) | - (medium run) |
| Non-redistributive expenditures | 0 (short and medium runs) | + (medium run) |

## Implications

- The expansion of free infrastructure and public utilities may benefit the poor more than the rich

- Government investment should be used with redistributive current expenditures as supplement polices since government investment has effects on Q2 and Q3 while redistributive current expenditures target better to the poorest.

- The findings emphasize the importance of spendings on human development in both enhancing growth and lowering inequality in medium run.

- It is necessary to reallocate government spendings towards investment and human development in Vietnam's ongoing restructuring of State budget.

# Looking forward

# Context

Public investment

↑ Pro-growth

↓ Pro-poor
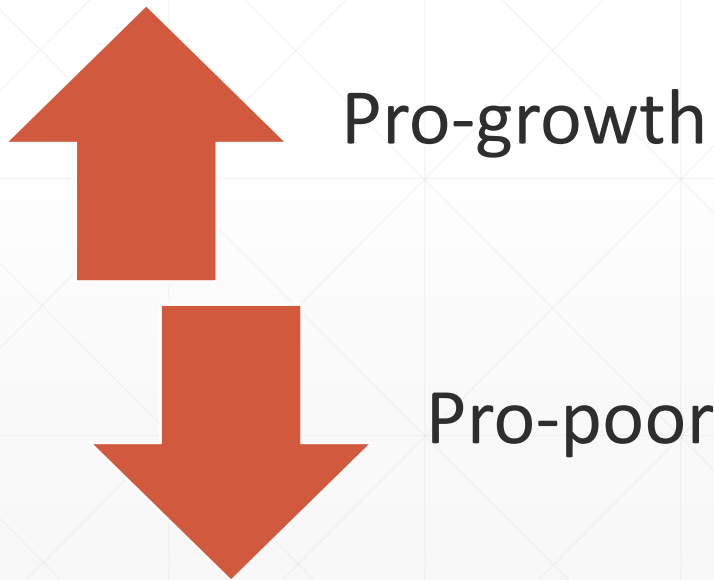
Allocation of state budget for public investment:

**USD 23 billion per year**

(Medium-term Public Investment Plan 2021-2025: VND 2.870.000 billion ~ USD 115 billion)

Investment need for sustainable infrastructure:

**USD 25-30 billion per year (**World Bank, 2020)

Financial gap for infrastructure development:

**USD 2-7 billion per year**

**Increasing public investment to finance the gap is facing challenges**

# The main sources to finance public investment are having difficulties in expanding

| | |
|---|---|
| **State budget revenue** | ▪ 20% of total state budget revenue is from unsustainable sources (such as revenues from divestment, SOE's dividends, land use fees...)<br>▪ ↓ import taxes according to commitments on tariff reduction in FTAs |
| **Domestic borrowings** | ▪ 54% of government bond value is held by Vietnam's Social Insurance Fund (accounting for 85% of its investment portfolio)<br>▪ Asset value of insurance business system: 11.2% of GDP (2022)<br>▪ Asset value managed by securities investment funds and fund management companies: 4.7% of GDP (2019) |
| **Foreign borrowings** | ▪ ↓ Access loans eligible for ODA<br>▪ ↓ ODA: 8.8% of GDP (2011-2015) to 4.7% of GDP (2016-2019)<br>▪ ↓ Share of ODA and concessional loan in government investment: 38.8% (2011-2015) to 27.3% (2016-2019) |

# Are Public Private Partnerships (PPPs) a promising solution?

- 1997: Decree 77/CP on investment regulations in the form of BOT contracts for domestic investors was issued

- 2021: Law on Investment by Public-Private Partnership took effect

- As of January 2019, 336 projects with total investment of 1,600,000 billion VND

**However, the number of failures is on the rise, particularly BOT (Build-Operate-Transfer) projects in transportation sector.**

### PPPs by sector in Vietnam, number of projects in 2019

- Transportation
- Energy
- Water supply, drainage and environment
- Others

23.8%

5.4%

5.4%

65.5%
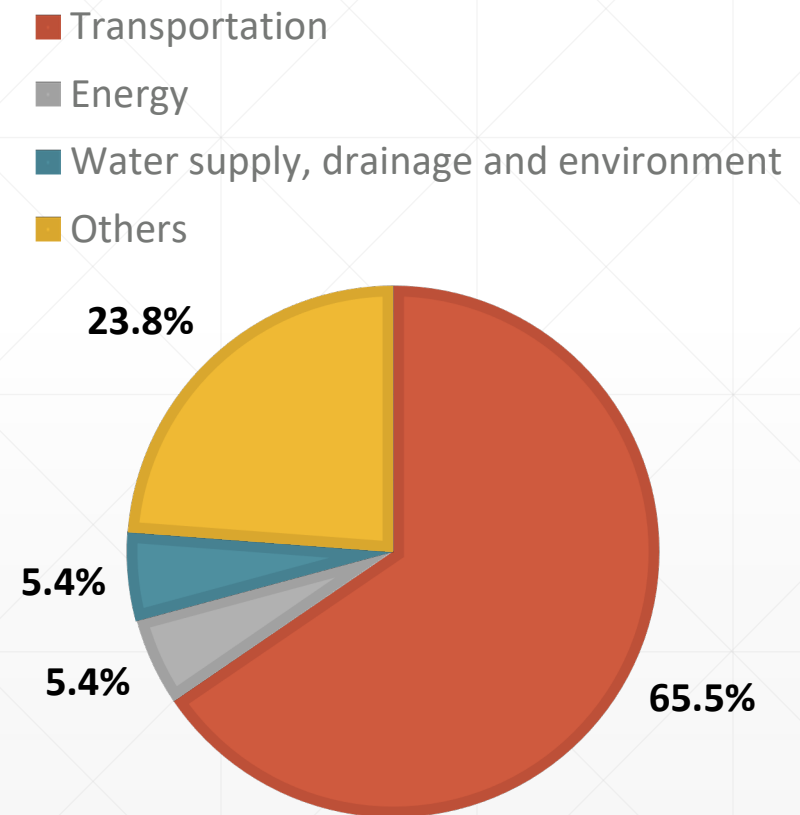
Source: Ministry of Planning and Investment of Vietnam

# Some projects failed to seek out private investors

**BOT project of Tuyen Quang - Phu Tho Expressway (to connect with Noi Bai - Lao Cai Expressway)** was approved by the Prime Minister in December 2019 with a target of about 40.2 km of road.

Total planned investment: about 3.271.09 billion VND, including:

- Central government budget: 500 billion VND (15.3%)
- Local budget: 10.79 billion VND (0.3%)
- Private investor: 2,760.3 billion VND (equity and credit loans) (84.4%)

**Investors participating in the bid had to satisfy conditions:**

- Equity of 425.91 billion VND
- Commercial loans are not lower than 2,334.39 billion VND
- The investors had experience in implementing a PPP project in road traffic construction

Local authority (Tuyen Quang Provincial People's Committee), the competent state agency, had to cancel the pre-qualification bid for investor selection because no investors applied.

**The project was then approved by the Prime Minister and converted into a conventional public investment project with funding mainly from the central government.**

The project under construction



Source: baotintuc.vn

# Private partners cannot ensure financial capacity to carry out the contract

**BOT Project of Huu Nghi - Chi Lang** (it was a sub-section in the BOT Project of Bac Giang - Lang Son Expressway in 2018)

Initial plan: Total investment of 7.609 billion VND, of which:

- Private investor: 3.609 billion VND (47%)

- Local government: 1.000 billion VND (13%)

- Central government: 3.000 VND (39%)

The project was delayed in 2 years because private investors were not able to arrange financial sources.

The competent state agency (Lang Son Provincial People's Committee) had to receive approval from the Prime Minister for the conversion of a BOT without state capital to a BOT with the participation of state capital.

**However, the project has been suspended since 2019 and is still in the process of adjusting the investment plan.**

The project is still in the process of adjusting the investment plan



Source: baodautu.vn

# Bankruptcy after completing construction due to unfeasible financial plan

**BOT Project of Binh Loi Bridge** to renovate and upgrade Saigon River channel from Binh Loi railway bridge (in Ho Chi Minh city) to Ben Suc port (in Binh Duong province)

New Binh Loi Bridge

**The project includes 2 construction items:**

- Newly constructing Binh Loi railway bridge: completed in 2019
- Dredging and expanding about 71 km of Saigon River channel: temporarily suspended

**The project is facing bankruptcy:**

- In the contract: To recover the capital, the investor is allowed to collect fees for waterway vehicles at three ports along Saigon River: An Son, Rach Bap and Ben Suc (in Binh Duong province).
- In reality: Binh Loi railway bridge was completed in 2019, but these ports have not been built (An Son and Rach Bap) or were partially built (Ben Suc). Then, Binh Duong province adjusted its planning, which removed Ben Suc port.

**Ministry of Transportation is proposing the Government to terminate the contract before maturity and pay costs to the investor.**

# What could be learnt from Japan?

**The number of PFI projects by field in Japan (as of March 2021)**

| Fields | Number of projects |
|---|---|
| Educational and cultural facilities | 292 |
| Urban development | 220 |
| Health and environment | 131 |
| Government buildings and dormitories | 76 |
| Industry | 27 |
| Security | 26 |
| Living and welfare | 25 |
| Other fields | 78 |
| **Total** | **875** |

Source: PPP/PFI Promotion Office, Japan

- 1999: the Act on Promotion of Private Finance Initiative (PFI Act) was enacted

- As of March 2021, 875 PFI projects implemented under the PFI Act and cumulative contract value of approximately USD 61 billion (7 trillion yen).

- The number of failures is not many and mainly occurred during the initial 10 years.

# Scope of private sectors

| Vietnam | Japan |
|---|---|
| Too high reliance and risks put on private sectors in BOT projects.<br><br>▪ 2019: 140/336 PPP projects were in the form of BOT contracts.<br><br>▪ Financial capacity of the private sector in Vietnam is generally limited.<br><br>▪ Bidding document requirements are often set too difficult.<br><br>▪ Inconsistent and inadequate mechanisms on risk sharing and dispute resolution between parties involved in PPPs. | ▪ Risks taken by the private sector are limited since the majority of PFI projects in Japan is in BTO (Build Transfer and Operate) and service purchase types.<br><br>▪ When the risks/scopes shared by a private entity are limited, it may be necessary to have incentives for the investor/developer to take the project. |

# Governance

| Vietnam | Japan |
|---|---|
| ▪ The public sector has a lack of skills in designing, negotiating and monitoring PPPs.<br><br>▪ PPPs are implemented with low discipline, leading to delays and lower quality projects.<br><br>▪ Many PPPs face financial difficulties due to poor demand estimates and unfeasible capital recovery plans. | ▪ The private sector is controlled reasonably through contractual terms and conditions.<br><br>▪ Initial schemes are designed to keep affordable, reasonable and acceptable structure. Tariffs should be affordable for users regardless of who takes responsibility to deliver.<br><br>▪ Some projects failed due to poor or challenging demand estimates, but it was not common. |

# Promotion and support from the government

| Vietnam | Japan |
|---------|-------|
| ▪ Lack of strategies to create a PPP market and public sector's readiness to cooperate with the private sector.<br><br>▪ Lack of guidelines in implementing PPPs, especially circulars guiding PPP laws of ministries and localities.<br><br>▪ Unstable PPP regulations => many investors have request guarantees, higher profit levels and longer capital recovery periods. | ▪ The PPP/PFI Promotion Office develops specific measures for promoting PPP/PFI, such as the "Action Plan for PPP/PFI promotion" organizing the "Committee for the promotion of PFI".<br><br>▪ The PPP/PFI Promotion Office prepares guidelines, manuals, case studies, etc.<br><br>▪ Each ministry, agency, prefecture, and ordinance-designated city also prepares its own guidelines to promote the use of PPP/PFI methods. |

# What could be learnt from Japan?

**Effective governance and strict discipline**

**Limited risks bore by private sector**

**Strong promotion and support from the government**

# Thank you for your attention