Policy Cost Analysis

1. Policy Cost Analysis（PCA）

The Fiscal Investment and Loan Program (FILP) supports several private activities through provides investment or loans to projects in which it is adequate to recover investment or loans from beneficiaries' burdens (users repayments).If those burdens are required to be mitigated for national policy objectives, government expenditure (subsidies, etc.) may be provided.

The policy cost analysis（hereinafter referred to as PCA）is an initiative to estimate future expenditure and revenue of such projects subjected to FILP (FILP projects) and use the following formula (all estimates are given in present value*) for determining and publishing FILP projects' policy cost that would be useful for judging their adequateness and soundness.

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① Government expenditure － ② Government revenue ＋ ③ Opportunity cost of government capital investment, etc.

(*For details, see "What is Present - Value?" on P.3）
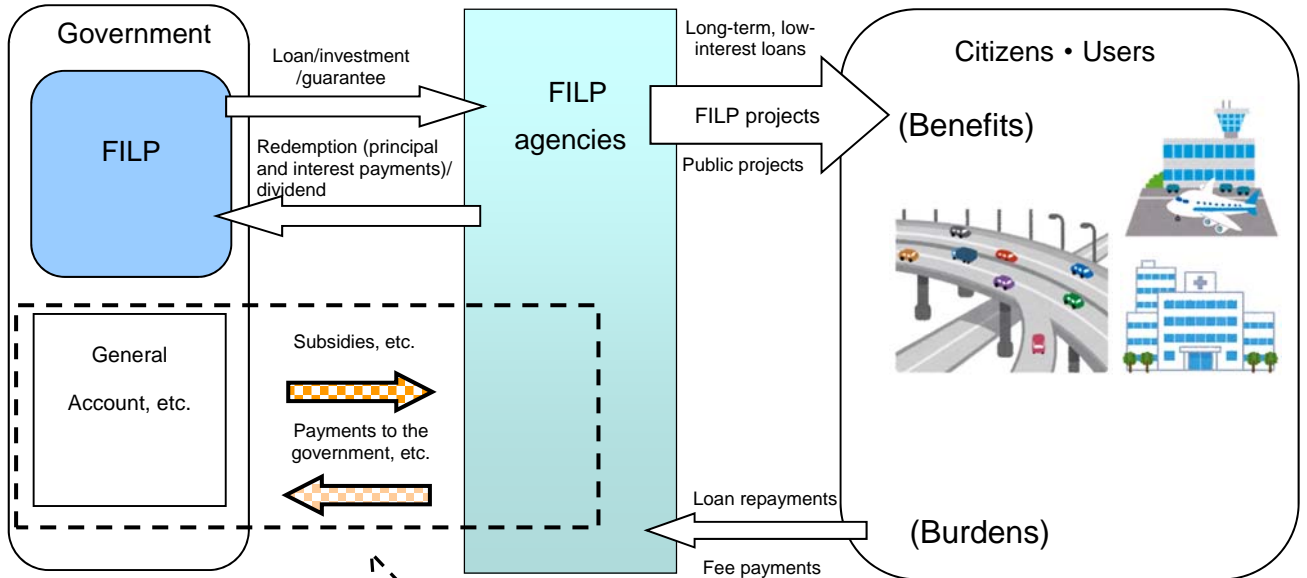

～ What is Policy Cost?～

PCA is an initiative launched in response to a recommendation given in discussions in a run-up to the FY2001 FILP reform, which called for clarifying future burdens on users accompanying FILP projects.

Generally, the word "cost" is used to mean expenditure, original value or price. PCA considers government expenditure (subsidies, etc.) for FILP projects to be "cost" but uses the term "policy cost" for the purpose of specifying that the "policy cost" concept differs from the general "cost" concept.

(* For details of the FILP reform, see FILP reform-related documents on the Ministry of Finance website
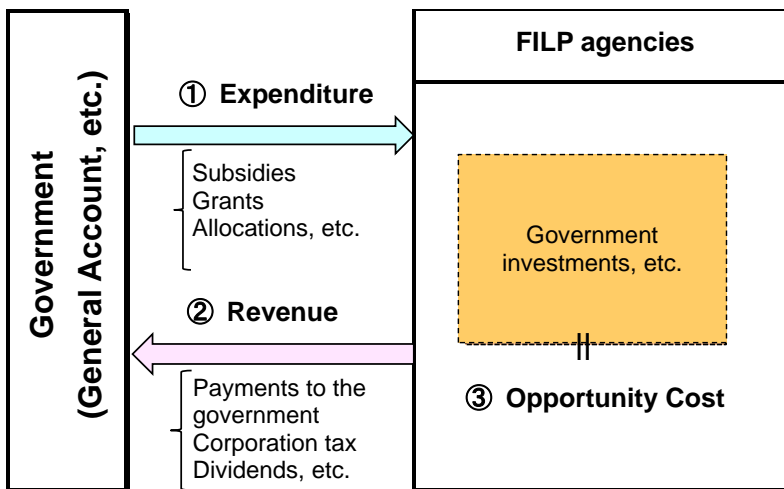
http://www.mof.go.jp/filp/reference/reform_report/index.htm

【Image of FILP and Policy Cost】

Government

FILP

Loan/investment /guarantee →

Redemption (principal and interest payments)/ dividend

FILP agencies

Long-term, low-interest loans

FILP projects

Public projects

Citizens・Users

(Benefits)

General Account, etc.

Subsidies, etc. →

Payments to the government, etc. ←

Loan repayments

Fee payments

(Burdens)

Policy Cost = ①－②＋③

※ All figures put in the formula represent present values

Government (General Account, etc.)

FILP agencies

① **Expenditure** →

Subsidies
Grants
Allocations, etc.

Government investments, etc.

=

② **Revenue** ←

Payments to the government
Corporation tax
Dividends, etc.

③ **Opportunity Cost**

～What is Opportunity Cost?～

The opportunity cost is an economic term meaning "a gain forgone due to an economic action or received due to another economic action."

If this concept is applied to FILP system, the results are as follows. If investment is not provided to a FILP agency, Japanese Government Bonds issuance amount will be reduced by the equivalent of the investment to cut interest payments.

Therefore, "Japanese Government Bonds interest cut lost due to investment" is identified as opportunity cost and added in policy cost.

～**What is Present - Value?**～

Will 1 million yen today have the same value 10 years later? If 1 million yen is invested for 10 years at an interest rate of 1% (simple interest), a combination of the principal and interest (1% (10,000 yen) × 10 years) will come to 1.1 million yen.

In this case, 1 million yen today will have the value of 1.1 million yen 10 years later. In other words, 1 million yen 10 years later will have a lower value than 1 million yen today.
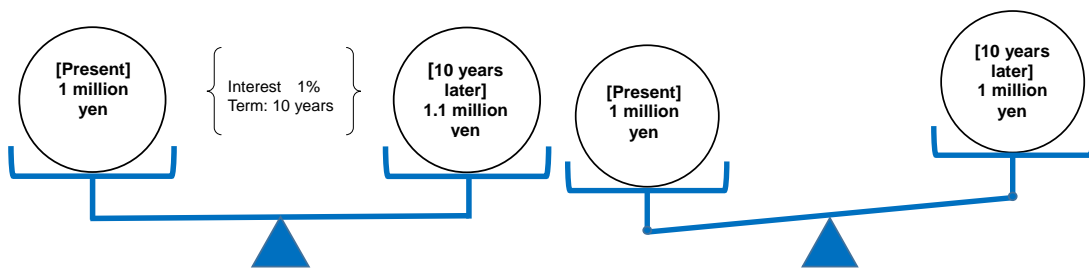
In order to compare asset values at different time points estimated through a long-term analysis like PCA, therefore, we must discount a future value (FV = principal + interest) by the equivalent of the interest to determine the present value (PV = principal). The present value expresses the cash-flows of current and future in terms of a single number. A future value is multiplied by a coefficient called "Discount factor" to determine the present value.

In PCA, Discount factor is calculated based on the market yield on Japanese government bonds on the day when the budget proposal for the fiscal year subject to analysis is adopted.

[Reference] Discount factor calculation formula

$$PV \times (1+r)^n = FV \quad \xrightarrow{\text{Converted}} \quad FV \times \boxed{\frac{1}{(1+r)^n}} = PV$$

↳**Discount factor**

PV: present value, FV: future value, n: the number of years, r: interest rate

2. Assumptions for PCA

In the course of PCA, we estimate cash flow for projects subject analysis over long periods to the completion of fiscal loan or investment recovery under certain assumptions and prepare income statements, balance sheets and other documents.

The assumptions include (1) common assumptions used for all FILP agencies and (2) individual assumptions that are set by FILP agencies according to the characteristics of their individual projects.

(1) Common assumptions
(For FY2019 analysis)

①Agencies subject to PCA

Agencies for which fiscal loan or government guarantees are earmarked in the FY2019 FILP Plan (excluding Public-private Investment Funds)

②Projects subject to PCA

FILP projects that are planned to be implemented in FY2019 and will be implemented in or after FY2020.

③Analysis period

An analysis period will end when fiscal loans or government-guaranteed bonds to be raised in or after FY2019 are redeemed and the recovery of funds amounting to loans or assets acquired through the abovementioned projects subject to analysis is completed.

④ Assumed interest rates (Discount factor and future interest rate)

These rates are calculated based on the market yield on the day when the FY2019 budget proposal was adopted.

(2) Individual assumptions

Estimates for loan claw-backs , project operating revenues, non-operating revenues, various costs, etc.

*These assumptions are set individually based on the latest settlement of each agency subject to analysis.

3. Details of PCA

Since PCA initiative was fully launched in FY2001, we have expanded analytical approaches and disclosure. At present, the analysis is done from a diversity of viewpoints, covering not only the basic analysis but also (1) past year comparative analysis, (2) sensitivity analysis, (3) breakdown of policy cost by time of provision of funds and (4) breakdown by causative factor. We are also trying to enhance the analysis by providing social and economic benefits of relevant projects as circumstantially as possible.

<Overview of analytical approaches>

(1) Past year comparative analysis (Real fluctuation analysis)

The past year comparative analysis compares policy cost estimates made for the current fiscal year and the previous year under equal assumptions to find changes in projects subject to analysis. (real fluctuation analysis)

(*For details, see "What is the Past - year comparative analysis? How is it done?" on p. 6)

(2) Sensitivity analysis

The sensitivity analysis is a process of analyzing by setting several alternative scenarios. In this analysis, FILP agencies estimates policy cost rises or falls on changes in some assumptions, including interest rates and project operating revenues, and measures their effects.

(3) Computing policy cost by time of provision of funds

By estimating the policy cost at the beginning of the analysis period and that during the analysis period (future), we can forecast fiscal burdens for a project subject to analysis.

(4) Analysis by causative factor

The analysis is designed to find a financing institution's policy cost for each of causative factors (including prepayments, loan losses and others (spread, etc.))

〜What is Past - year comparative analysis? How is it done?〜

The policy cost is calculated based on a long-term estimate for a project subject to analysis, and changes greatly depending on analytical assumptions (particularly assumed interest rates).
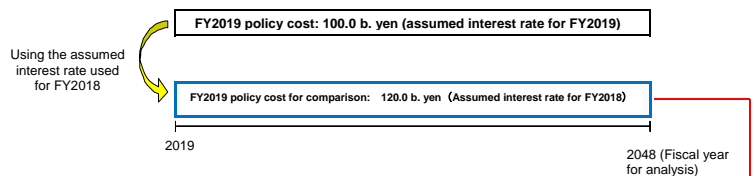
Therefore, a simple comparison between the policy cost estimates for the current fiscal year and the previous year cannot specify whether their gap is attributable to different assumptions or significant changes in a project subject to analysis.

The past - year comparative analysis uses the same assumed interest rate and analysis period (the beginning of the analysis), which have no direct relations with any project, to compute policy cost estimates for the current and previous fiscal years for comparison to identify effective factors behind their gap. (real fluctuation analysis)
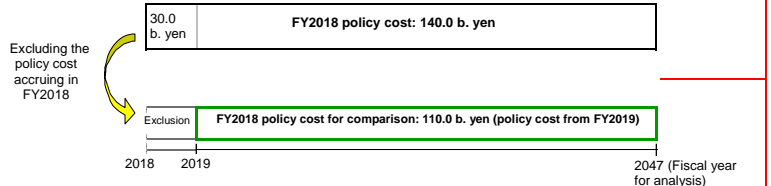
Specific analysis procedures follow:

(A) Adjusting assumed interest rates

The assumed interest rate used for the previous year (FY2018) is used for the current year (FY2019) analysis to calculate the policy cost (for FY2019) for comparison.

Using the assumed interest rate used for FY2018

FY2019 policy cost: 100.0 b. yen (assumed interest rate for FY2019)

FY2019 policy cost for comparison: 120.0 b. yen (Assumed interest rate for FY2018)

2019   2048 (Fiscal year for analysis)

(B) Adjusting initial years

Next, the policy cost that accrued in FY2018 is subtracted from the policy cost in the analysis for the previous year (FY2018) to calculate the policy cost (for the FY2018) for comparison.

Excluding the policy cost accruing in FY2018

30.0 b. yen	FY2018 policy cost: 140.0 b. yen

Exclusion	FY2018 policy cost for comparison: 110.0 b. yen (policy cost from FY2019)

2018   2019   2047 (Fiscal year for analysis)

(Note) Specific cost amounts are given to make the explanation easy to understand.

(C) Computing real fluctuation (summary)

Policy cost amounts for comparison computed in (A) and (B) are compared to determine the effective change.

Real fluctuation: +10.0 b. yen

(A) 120.0 b. yen – (B) 110.0 b. yen = + 10.0 b. yen

Factors behind the effective change computed in this way include the following:

- Effect of business plan or institutional changes (common)
- Effect of new projects launched in the fiscal year for the analysis (project institutions)
- Effect of new loans provided in the fiscal year for the analysis (financing institutions)
- Past year fluctuations in project revenues and costs (project institutions)
- Past year fluctuations in loan losses and prepayments (financing institutions)
- Past year fluctuations in clerical and general administrative costs (common)

4. Utilization of PCA

Various documents prepared during PCA are important for checking project prospects, financial conditions, the redeemability of fiscal investment and loans, etc. FILP Agencies subject to analysis and relevant government ministries and agencies share and discuss challenges arising through the series of PCA procedures, expecting that such discussions would lead project implementers to improve and revise their projects. This process is also significant from the viewpoint of public fund providers' governance.

We continue to steadily implement PCA and enhance the published contents as well as further utilizing it.

<Example cases for utilization of PCA>

I. Utilization for formulating FILP

(1) Checking present conditions and latest financial statements for projects

Analysis results for the previous year and latest financial statements are compared to check whether any unusual fluctuations are posted in operating revenues (project institutions),loan losses (financing institutions) and other items that would exert influence on future balance sheets.

(2) Verifying redeemability of fiscal investment and loans

Future cash flow and financial statement estimation results prepared through the analysis are screened to verify the redeemability of fiscal investment and loans and check whether terms and conditions for fiscal loan funds are adequately based on revenue and expenditure projections.

(3) Assessing FILP projects

Checking whether FILP projects are adequate in terms of the policy cost's relationship with social/economic benefits, their complementarities for the private sector and other matters.

II. Utilization by FILP agencies

(1) Financial improvements, Risk management

- Confirming how interest rate, operating revenue, loan loss and other fluctuations would affect future financial conditions and considering countermeasures depending on conditions

- Utilizing PCA for considering how to use cash on hand and reserves

- Checking effects of business plan changes on future financial conditions

- Considering measures to narrow gaps between average asset and liability durations

(2) Disclosure

- Providing PCA on websites

- Providing PCA in bond prospectuses when issuing FILP agency bonds (documents prepared for investors in compliance with the prospectuses required under the Financial Instruments and Exchange Act)