

RESEARCH REPORT

Establishing additionality in industrial investment support

Public support may change whether, where or when an investment takes place. This report establishes the counterfactual evidence needed to distinguish additional investment from displacement, timing changes and projects that would have proceeded without support.

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<https://aesenate.org/research/industrial-investment-additionality/>

Abstract

Investment announced alongside public support is not a measure of investment caused by that support. The relevant comparison is with a defensible account of what the firm, its competitors, and the wider economy would have done in its absence. This report develops an evaluation framework that separates project completion from additional investment, additional domestic activity from additional global capacity, and investment effects from public value. Original hypothetical examples demonstrate how an attractive project-to-subsidy ratio can coexist with limited additionality. The framework specifies the evidence needed before an award, during delivery, and after operation, with particular attention to baseline decisions, overlapping instruments, relocation, and the timing of benefits. It does not estimate the effectiveness of a particular national program or rank the United States, euro area, or China.

The decision that the evaluation must recover

An investment decision is a choice among alternatives. A firm may build a plant at the proposed location, build elsewhere, expand an existing facility, adopt a different technology, postpone the investment, or cancel it. A public intervention can alter one or several of those margins. An evaluation that records only the supported outcome cannot determine which margin changed.

The OECD's [Industrial Policy Handbook, implementation section](#) defines additionality in terms of activity that would not otherwise occur and distinguishes it from windfall gains and displacement of private funding. That distinction provides the starting point here. Additionality is a comparison between potential outcomes, not a synonym for expenditure by a recipient.

The first task is to state the treatment. A grant award, concessional loan, tax provision, purchase commitment, and infrastructure connection affect different aspects of a decision. Their relevant dates can also differ: announcement, credible eligibility, approval, contract, and payment may each influence behavior. Selecting the payment date as the beginning of treatment can miss investment undertaken in anticipation of support.

The outcome must then be defined at a compatible level. A completed plant is a project outcome. A firm's total capital spending is a company outcome. National capacity, employment, productivity, and resilience are broader outcomes. Evidence at one level does not automatically establish an effect at another. The evaluation should identify the unit, time period, price basis, and geographic perimeter before interpreting any change.

A narrow question can be answered more credibly than an undefined claim of transformation. For example, whether an award accelerated a specified production line differs from whether it increased the country's long-run productive capacity. The first may be investigated with project schedules and financing records; the second requires information about substitution, competitors, demand, and persistence.

Construct a baseline before the award

A baseline should describe the alternatives available when the decision was made. The most useful records are contemporaneous: board submissions, internal investment appraisals, financing offers, site comparisons, supplier commitments, and regulatory or infrastructure constraints. Documents created after an award can explain implementation, but they are weaker evidence of an earlier intention when the recipient has an interest in defending the support.

This does not imply that every internal projection is accurate or that firms must disclose commercially sensitive documents publicly. It implies an evidentiary hierarchy. A dated appraisal prepared for an actual investment committee serves a different purpose from a public statement drafted to accompany an award. A reviewer can examine protected records and publish the relevant reasoning, assumptions, and limits without disclosing proprietary details.

The baseline should include more than a binary choice between building and doing nothing. If an existing plant would have received an upgrade, the incremental decision is the difference between the supported project and that upgrade. If the firm would have built the same capacity abroad, domestic location additionality may be substantial while global capacity additionality is small. If it would have invested two years later, the principal effect may be acceleration.

A baseline also needs a price and demand environment. A project that appears unviable under one energy-price assumption may be profitable under another. An award decision made before a sharp change in market conditions should not be reassessed as if the later information had been available from the start. Ex ante justification and ex post performance answer related but different questions.

A credible record preserves the original baseline and adds later revisions with explanations. Replacing the initial scenario silently with an outcome-informed scenario removes the possibility of testing the original proposition. It can make either a successful or a disappointing project appear inevitable after the fact.

A project appraisal does not establish a causal effect

Consider an entirely hypothetical project requiring an initial investment of 100 million currency units. The discounted value of expected operating receipts net of operating costs is 94 million. Before support, its private net present value is therefore –6 million. An immediate grant of 8 million raises that value to 2 million.

Hypothetical appraisal item	Million currency units
Initial investment	100
Discounted operating receipts net of operating costs	94
Unassisted private net present value	–6
Immediate grant	8
Assisted private net present value	2

Assume for this illustration that the discount rate, costs, receipts, tax treatment, and grant timing are already incorporated consistently. The calculation shows that the grant can cross the modeled private investment threshold. It does not show that the assumptions are correct, that no alternative financing exists, or that the project is socially worthwhile.

A second appraisal could show discounted net operating receipts of 106 million. The same grant would increase an already positive private net present value from 6 million to 14 million. Without an additional constraint or a change in project scope, that calculation supplies no reason to attribute the investment decision to the grant.

Neither appraisal is an empirical estimate. The point is that the size of a supported project does not reveal its counterfactual. A report displaying 100 million of investment beside an 8 million grant can claim a project-to-grant ratio of 12.5. It cannot infer 12.5 units of additional investment per unit of grant from those two numbers alone.

Suppose the best supported baseline instead contains an 80 million investment and the award induces a 100 million project. The incremental investment is 20 million, giving an incremental-investment-to-grant ratio of 2.5 under that assumption. The difference between 12.5 and 2.5 is entirely attributable to the treatment of the baseline, not to a disagreement about the observed project cost.

These ratios remain incomplete measures of public value. They omit delivery costs, tax interactions, future commitments, operating performance, and external effects. They can organize a financial comparison once the baseline is specified; they cannot substitute for an assessment of the intervention’s objective.

Match the evidence to the claim

The [GAO guide to designing evaluations](#) distinguishes questions about program implementation from questions about effectiveness and discusses experimental and comparison-group designs. Random assignment can reduce systematic differences between supported and unsupported units; nonrandom comparisons require careful attention to selection and other influences. A method should be chosen for the actual decision process and available evidence, rather than attached to a report after the conclusion is settled.

For an investment-support program, the selection record is part of the research evidence. Which firms were eligible? Who applied? How were applications scored? Which proposals were rejected, withdrawn, or deferred? A comparison with firms that never sought support may confound the award with prior differences in project readiness, financing constraints, management, or expected demand.

Where a quantitative eligibility threshold exists, projects near that threshold may be informative. The evaluator still needs to establish that the score was not manipulated around the cutoff and that other rules did not change at the same point. An estimate for marginal applications near a threshold should not be presented as the average effect for the largest recipients far above it.

A before-and-after comparison has a different weakness. If investment rises after the award, the change may also reflect improved demand, lower financing costs, technology changes, or another intervention. The baseline must account for the relevant alternative explanation. Describing these influences in a limitations paragraph does not make them disappear from the estimate.

The OECD's [2014 evaluation review](#) identifies counterfactual construction, selection, policy interactions, and the long horizon of some outcomes as recurring difficulties. These concerns are particularly acute where a program contains a small number of very large projects. A detailed case record may then support a bounded conclusion about a decision without supporting a precise economy-wide causal coefficient.

The strength of the conclusion should follow the design. Verified expenditure supports a statement about spending. A documented change in project scope supports a statement about that change. A credible comparison may support an estimated effect for specified participants. Moving from one statement to the next requires additional evidence, not more assertive wording.

Identify the margin on which behavior changed

Additionality can take several forms, and each calls for a different outcome measure.

Scale. The supported project may be larger than the feasible unassisted alternative. The relevant comparison is incremental capacity or investment, with common prices and scope. A rise in project cost caused by higher construction prices is not evidence of a larger real investment response.

Timing. Support may bring an investment forward. The evaluation should compare the full investment paths, including any later period in which the unsupported project would have caught up. Reporting only the early gain can overstate the long-run addition, although earlier availability can still have economic value.

Location. A project may move between jurisdictions. The host can gain employment, supplier demand, or strategic capacity without a corresponding increase in global production. The report should state whose outcome is being evaluated and examine the displaced location when making broader claims.

Technology or quality. A firm may choose equipment with lower emissions, higher efficiency, or different capabilities. Capital spending alone may fail to measure the intended change. The evaluator needs a specified technical benchmark and evidence of operation, with the unassisted technology treated as a real alternative.

Knowledge or coordination. A program may support learning, shared infrastructure, or collaboration that benefits other firms. Counting meetings, agreements, or participation establishes activity. Demonstrating an economic effect requires evidence that the collaboration changed capability, cost, adoption, or another defined outcome.

These margins need not be combined into one score. A program can succeed in accelerating a project while failing to increase its eventual scale. It can generate useful knowledge without producing a commercially successful plant. Reporting the separate results is more informative than choosing the one favorable indicator and presenting it as proof of overall effectiveness.

Separate the recipient from the market

An expansion at a recipient can partly displace activity elsewhere. If a subsidized producer gains customers from an unsubsidized domestic producer, the recipient's sales increase overstates the market-wide expansion. If scarce engineers are recruited from neighboring firms, new employment at the plant is not identical to new employment in the economy.

Displacement is not necessarily complete, immediate, or undesirable. The relevant issue is whether it is measured or bounded. A policy intended to increase productivity through entry might deliberately shift activity toward a more efficient producer. The assessment should then examine productivity and resource reallocation rather than count every recipient job as an aggregate addition.

Market structure also changes the interpretation of benefits. Additional capacity may lower prices for purchasers, raise demand for specialized inputs, or affect competitors' entry decisions. These outcomes can occur beyond the recipient's accounts. A project appraisal that stops at the firm's cash flow cannot establish the balance of those effects.

The OECD's [2024 analysis of industrial policy, annex C](#) emphasizes the difficulty of identifying economy-wide counterfactuals, spillovers, interdependence, and long-run effects. The appropriate response is to define the scope of the estimate and examine plausible omitted channels. A firm-level result should retain that label when the wider channels remain unmeasured.

For resilience objectives, capacity alone is an incomplete outcome. A facility might depend on the same imported input, transport route, software, or energy connection as existing suppliers. An evaluation should specify the disruption considered, the facility's ability to operate during it, and the cost of maintaining that

capability. Otherwise, additional nominal capacity can be mistaken for an independently functioning supply option.

Account for the complete support package

A recipient can receive several forms of public assistance. A grant may coincide with a tax incentive, concessional finance, land provision, infrastructure, training support, or a purchase commitment. Attributing the observed project to each instrument separately can count the same effect several times.

The evaluation should first define whether it is assessing the package or the incremental contribution of one instrument. The package can be compared with a baseline without the package. Isolating one component requires an additional comparison holding the relevant other conditions consistent, or a model that states how their interactions are treated.

The financial denominator also needs a common valuation date. An immediate grant, a possible future tax benefit, and a loan principal are not interchangeable budget costs. For a loan, repayment terms and risk determine the economic support element; quoting the full principal as if it were a grant can misstate the comparison. Conversely, omitting contingent commitments can understate public exposure.

In the hypothetical grant example, suppose administration and project-specific public delivery cost another 3 million. Grant plus delivery cost is then 11 million before considering other costs or recoveries. The additional 3 million should be visible in an assessment of public resource use even though it does not appear in the recipient's grant receipt.

Public financial cost is still not identical to social resource cost. A transfer changes the distribution of purchasing power; construction uses labor, materials, land, and other resources. A social appraisal must state its treatment of transfers, financing, externalities, and opportunity costs so that the same item is not counted as both a resource cost and an additional loss without justification.

Compare jurisdictions through common questions

A comparison covering the United States, euro area, and China should not presume that similarly named programs have the same institutional boundary. National, regional, and local measures can interact; a tax expenditure can be recorded differently from a direct payment; public enterprises and financial institutions can occupy different positions in the support system.

This report makes no factual claim about the current scale or relative effectiveness of those systems. It proposes common questions for a subsequent empirical comparison: What decision was affected? Which public bodies supplied support? What was its economic value? Which investment would otherwise have occurred? Where did activity change? What period and outcome are observed?

A cross-jurisdiction table should preserve missing information as missing in the research record. It should not convert an undisclosed amount to zero or compare a complete package in one jurisdiction with a partial

instrument in another. If a common denominator cannot be established, a structured institutional comparison may be more defensible than a league table.

Currency conversion also needs a purpose. A common currency may help compare financial scale at a chosen date. It does not resolve differences in purchasing power, construction costs, program duration, or risk. Ratios and normalized measures can help, but only when the numerator and denominator cover compatible activities.

The comparison should ultimately explain mechanisms and evidence quality. A larger headline award can be more additional, less additional, or simply larger in project scale. Its ranking by face value alone offers no reliable ranking of policy effectiveness.

Preserve an evaluation record through operation

Before approval, the record should identify the objective, feasible alternatives, proposed support, expected incremental decision, and conditions under which the project would proceed without assistance. It should also specify which information can later test those expectations. The intention is to make the claim falsifiable while the relevant decision is still observable.

During delivery, monitoring should distinguish commitments, payments, verified expenditure, physical milestones, and changes in scope. A delayed payment and a delayed plant are different events. A lower payment can reflect savings, a smaller project, or a canceled commitment. Interpretation requires reconciliation with the project record rather than an automatic success or failure label.

After commissioning, operating evidence becomes decisive. Installed capacity should be separated from actual production, utilization, reliability, cost, and service quality. An asset can meet a construction milestone while remaining dependent on an unavailable connection or input. A project can also operate below capacity for reasons unrelated to the original support, which must be considered when assessing performance.

An evaluation schedule should match the mechanism. A construction subsidy may affect spending before output. A research program may affect knowledge before commercial revenue. Evaluating every instrument after the same short interval can favor outcomes that are easy to count and miss those that motivated the intervention.

Reporting should retain unsuccessful and withdrawn projects where they belong in the evaluation population. Removing them from the sample after observing failure biases the picture toward survivors. At the same time, a canceled project should not be counted as a completed asset merely because its original announcement remains in a public archive.

Make uncertainty informative

A point estimate can conceal how strongly a result depends on the unsupported alternative. In another hypothetical extension, retain observed project investment of 100 million and a grant of 8 million, but suppose the evidence only bounds otherwise expected investment between 60 million and 100 million. Incremental investment then lies between zero and 40 million. The corresponding incremental-investment-to-grant ratio lies between zero and five. Those bounds are assumptions about the baseline, not a confidence interval estimated from data.

The range is more informative than selecting an unsupported midpoint and reporting it to two decimal places. It directs research toward the unresolved decision: whether the firm would have undertaken an investment near the lower or upper end of the baseline range. A dated financing rejection, a binding prior construction contract, or a credible alternative-site commitment could materially change that assessment.

Sensitivity analysis should change assumptions that are both uncertain and relevant to the decision. Varying a discount rate by a small amount while holding an implausible cancellation baseline fixed can create an appearance of robustness without testing the main source of uncertainty. Conversely, combining every adverse assumption into one case can produce a useful stress test without representing a likely joint outcome. The report should distinguish those purposes.

The same discipline applies to model-based wider benefits. If a supported facility's output is assumed to replace imports, the result may depend on demand, purchaser substitution, input sourcing, and competitors' responses. A model should disclose those channels and show which conclusion changes when a major assumption changes. A model output is conditional evidence, not a directly observed consequence of the award.

Uncertainty can also guide program design. If the decisive constraint is a missing infrastructure connection, a larger general grant may not resolve it. If the obstacle is temporary financing, the relevant alternative may involve repayable assistance rather than an unconditional transfer. These are hypotheses to assess against project evidence. Their purpose is to compare instruments that address the same constraint, rather than to assume that the proposed instrument is the only feasible intervention.

Use findings to revise the intervention

Evaluation has a decision function beyond retrospective reporting. A finding of limited scale additionality might lead to narrower eligibility, a revised support formula, or a requirement for evidence of a financing gap. A finding of useful acceleration might justify assessing the value of earlier output explicitly. A finding that operational reliability is the binding condition might redirect monitoring toward service availability rather than construction spending.

Contractual conditions should be evaluated alongside these choices. A provision for repayment when an agreed condition is not met can protect public funds in specified circumstances, but its effectiveness depends

on enforceability, information, and the recipient's ability to repay. The existence of a recovery clause does not establish that a project is additional or that all fiscal exposure has been removed.

Changes in program rules should preserve the distinction between original commitments and later revisions. An award renegotiated after a demand shock is not the same treatment as the original award. An assessment should explain what changed, why the amendment was made, and which baseline is relevant to the revised decision. Otherwise, a new support package can be evaluated against an obsolete counterfactual.

Finally, publication should make the chain from evidence to judgment inspectable. A reader should be able to identify the observed outcome, the proposed baseline, the method connecting them, and the material uncertainty. Confidentiality can constrain disclosure of individual records; it need not prevent publication of definitions, aggregation rules, sensitivity assumptions, or the reasons for a bounded conclusion.

Decision rules for interpretation

The evidence can support several distinct conclusions. A program may be delivered as intended, may change recipient behavior, may produce wider benefits, and may do so at an acceptable cost. Each proposition should be stated separately and supported at the level at which it is made.

Where evidence is incomplete, the report can still be useful by identifying the consequential uncertainty. If the unsupported location is unknown, domestic additionality may remain uncertain. If the project is still being built, operational benefits are prospective. If other assistance cannot be valued, a precise cost-effectiveness ratio is premature. These are specific limits on interpretation, not reasons to replace analysis with promotional language.

The governing discipline is to preserve the counterfactual throughout the assessment. Announcements establish commitments; accounts establish transactions; delivery records establish assets and services. Additionality requires evidence about the difference the intervention made. Public value requires a further assessment of the benefits, costs, distribution, and alternatives associated with that difference.

Method and scope

This report is an analytical framework with original hypothetical calculations. It contains no newly collected firm-level dataset, estimated treatment effect, or evaluation of a named award. Its examples assume simplified project finances to isolate particular reasoning errors. Applying the framework requires jurisdiction-specific program documents, consistent financial valuation, and an evaluation design appropriate to the actual assignment of support.

Related research

[India's capital budget from provision to execution](#) develops the distinction between planned expenditure, financial execution, and completed assets.

When chained-dollar components do not add to GDP explains why a change in investment volume must be measured using a coherent price and aggregation framework.

Source addresses

The links below retain the source addresses cited in the analysis. References should be read within their stated periods and scope.

https://www.oecd.org/en/publications/2026/06/industrial-policy-handbook_a5b12f68/full-report/component-6.html

<https://www.gao.gov/products/gao-12-208g>

https://www.oecd.org/content/dam/oecd/en/publications/reports/2014/07/evaluation-of-industrial-policy_g17a24e7/5jz181jh0j5k-en.pdf

https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/12/the-return-of-industrial-policies_1bb0c82b/051ce36d-en.pdf