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Developing Economic Reasoning through Financial Document Inquiry in Undergraduate Teaching

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Abstract

Financial documents can make economics teaching concrete, but their classroom use frequently stops at calculating ratios or identifying accounting discrepancies. This conceptual and methodological article develops an inquiry sequence in which students reconstruct an economic problem from a bounded set of financial records, examine competing explanations, and communicate a conditional decision. The framework draws on research in economics education, problem based learning, cognitive load, and financial literacy assessment. Its contribution is a distinction between document accuracy, accounting interpretation, and economic inference, with separate learning outcomes for each. An illustrative teaching dataset demonstrates why increasing expenditure does not necessarily indicate declining efficiency and why a balanced account does not establish an efficient allocation. The article supplies a staged inquiry protocol, a document design matrix, a worked analysis, and an evaluation strategy. The proposed sequence combines explicit instruction with progressively reduced support. No participant data or empirical intervention results are reported.

Key Words: teaching economics; financial documents; inquiry learning; economic reasoning; unit costs; financial literacy; instructional scaffolding.

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Introduction

Students encounter financial information in household decisions, organizational management, and public debate. They may nevertheless struggle to decide what a document can establish. An expenditure report shows how much was recorded; it does not directly reveal whether the underlying allocation was efficient. A larger budget may reflect higher prices, a greater volume of services, a different service mix, or reduced productivity. Selecting among these explanations requires economic reasoning beyond accurate calculation.

This article asks how teachers can organize financial document inquiry so that it develops economic explanation rather than document handling alone. The focus is undergraduate teaching in applied economics, introductory public finance, and courses that include organizational resource allocation. The proposed approach is particularly relevant when teachers have professional experience in financial control and wish to translate it into a pedagogically coherent learning sequence.

The argument is that students need a visible progression from document reconstruction to economic inference. The distinction makes the method applicable without turning the economics course into accounting instruction. Students learn enough about the records to understand the evidence, then use economic concepts to compare alternatives and evaluate explanations. Allgood et al. (2015) locate teaching methods within a broader research agenda on undergraduate economics learning. Here that agenda is operationalized as a question about the observable reasoning demanded by a specific instructional task.

Literature and conceptual position

Empirical projects already have an established place in contemporary economics teaching. CORE Econ's *Doing Economics* provides activities for learning data handling and statistical skills through economic questions (Tipoe & Becker, n.d.). The present design shares the principle that data work should serve an economic question. Its narrower focus is the educational use of linked financial records, including the possibility that records reconcile correctly while the economic interpretation remains incomplete.

The OECD financial literacy framework distinguishes content, processes, and contexts in the assessment of financial understanding (OECD, 2023). It provides a useful reminder that identifying information and evaluating decisions are different demands. However, PISA concerns school age learners, and its financial literacy construct is not equivalent to

undergraduate competence in economics. This article uses the distinction as a conceptual reference, not as validation of its proposed university level instrument.

Problem based learning provides a rationale for beginning with an unresolved explanation (Hmelo-Silver, 2004). Students must decide which information is needed and why. Yet an open problem does not remove the teacher's responsibility to teach prerequisite concepts. Sweller's (1988) analysis of cognitive load motivates the use of a small initial document set, a worked example, and reduced procedural demands before students confront several competing explanations.

Recent economics pedagogy also emphasizes the design of participation and assessment rather than simply increasing activity (Barrera et al., 2024). In a document inquiry lesson, group work can conceal unequal access to the central reasoning: one student may calculate while another only formats the report. The model therefore distributes substantive responsibilities and ends with an individual explanation using a different context.

Method and design criteria

This is a conceptual design study based on a purposive synthesis of literature and analysis of an illustrative dataset. The sources were chosen to inform disciplinary goals, inquiry processes, scaffolding, and assessment. No comprehensive literature search protocol, pooled effect estimate, or claim of systematic review coverage is offered. The design is assessed through internal consistency: the documents must permit the intended calculation, the calculation must inform the economic question, and the required explanation must be assessable.

Constructive alignment supplies an additional consistency test: the stated learning outcome, inquiry activity, and assessment must demand the same kind of performance (Biggs, 1996). A learning outcome about interpreting efficiency should therefore be assessed with an unfamiliar interpretation task rather than only a formula completion test.

Four criteria guide the development. Traceability requires each number used in an argument to have an identifiable source within the document set. Comparability requires quantities from different periods or options to have consistent definitions and units. Explanatory separation requires students to distinguish an observed change from its possible cause. Decision relevance requires the final product to specify what follows for a feasible choice, including circumstances under which the recommendation should change.

These criteria are applied to a fictional service unit below. The dataset and teaching tasks are original illustrative materials constructed for this article. They contain no identifiable institutional transactions and do not represent a study conducted at the author's institution. The contribution lies in an explicit instructional architecture and worked reasoning sequence, not in observed learning outcomes.

Three levels of financial document understanding

At the first level, students establish document accuracy. They check arithmetic, units, dates, coverage, and the relationship between summary and source records. This can reveal duplicate entries or mismatched periods. Its successful completion means that the document set is usable under the stated assumptions; it does not establish that the economic decision was sound.

At the second level, students interpret the accounting representation. They distinguish budgeted from actual expenditure, cash payment from resource use where relevant, and total expenditure from categories of expenditure. In an introductory exercise, the teacher can assume that payments and resource use fall in the same period. The assumption must be explicit, since ignoring timing in a more advanced case could distort the analysis.

At the third level, students draw economic inferences. They identify an appropriate output, consider alternative explanations, compare resource use per output, and discuss incentives or constraints. Efficiency cannot be inferred from expenditure alone. Even expenditure per recorded service is an incomplete measure if service quality, user needs, or case difficulty differ. The aim is a warranted inference with a stated boundary, rather than an apparently definitive ranking.

The separation supports diagnosis. A student who obtains an incorrect unit cost because of a unit conversion needs different support from a student who calculates correctly but assumes that every cost increase is waste. The former problem concerns data handling; the latter concerns the economic model. Treating both as a single incorrect answer loses useful pedagogical information.

Designing a bounded document set

A useful introductory document set contains only records needed to answer a defined question. For a service delivery case, it may contain a budget and actual expenditure summary, an output register, and a short note on prices and service quality. Later versions can introduce conflicting dates or incomplete

reporting. Complexity should increase because the learning objective changes, not because authentic paperwork happens to be lengthy.

Table 1 presents a proposed document matrix. The teacher states the evidential boundary of each record before students use it. This avoids implying that financial documents provide a complete account of organizational performance.

Document	Information supplied	Economic question supported	Main limitation to discuss
Expenditure summary	Spending by period and category	Did total recorded spending change	Spending alone does not measure efficiency
Output register	Number of comparable services	How did spending per service change	Quantity may conceal quality or case mix
Price note	Relevant input price movement	How much change may reflect prices	A general index may poorly match local inputs
Quality record	Defined service completion indicator	Is output comparably plausible	One indicator cannot capture all service value
Alternative proposal	Cost and capacity of another option	What feasible choice is available	Forecasts remain conditional estimates

An illustrative analysis of expenditure and output

A fictional training support unit reports expenditure of 120 million UZS in period 1 and 150 million UZS in period 2. Its recorded output increases from 1,000 to 1,500 comparable service units. For the initial task, the periods have equal length, service definitions and quality are held constant, and expenditure is assumed to represent resources used in each period. All figures are hypothetical teaching values.

Total nominal expenditure rises by 25 percent. Nominal expenditure per service falls from 120,000 UZS to 100,000 UZS, a decrease of approximately 16.7 percent. A student who interprets the spending increase as sufficient evidence of declining efficiency ignores output growth. A student who declares a proven productivity improvement from the falling unit expenditure also goes beyond the available evidence, because input quantities and other

dimensions of service quality are not yet observed.

The teacher then provides a case specific input price index of 1.10 for period 2 relative to period 1. Dividing 150 million UZS by 1.10 gives approximately 136.36 million UZS in period 1 prices. Real expenditure per service is approximately 90,909 UZS, compared with 120,000 UZS previously. Under the maintained assumptions, this is a decrease of approximately 24.2 percent. The price adjustment refines the comparison, but its credibility depends on how well the supplied index represents the unit's actual input basket.

A later note states that the output register counts all completed requests, including shorter online requests introduced in period 2. The assumption of comparable service units no longer holds automatically. Students should revise the conclusion and request a breakdown by type or a defensible weighting procedure. The exercise does not require them to guess a missing correction. Recognizing that the original denominator is inadequate is itself an important analytical performance.

This example illustrates why an authentic inquiry should retain some uncertainty. Arithmetic can be correct while the interpretation remains fragile. It also makes the difference between a price adjustment and a quality adjustment visible: the former changes the valuation of inputs; the latter changes the interpretation of outputs. The teacher can ask students to identify which additional record would resolve each uncertainty and whether collecting it is proportionate to the decision.

A staged inquiry protocol

The first stage is question formulation. Students receive a short management claim, such as the assertion that increased spending demonstrates reduced efficiency. Before calculating, they rewrite it as a testable comparison and list the quantities required. The teacher checks that the question includes both a resource measure and a relevant output or outcome.

The second stage is document reconstruction. Students create a compact data dictionary specifying the meaning, unit, period, and source of every variable. They reconcile the totals and record any exclusions. An accessible spreadsheet template can reduce transcription demands, but students must still explain the meaning of the denominator. Formula completion without interpretation is insufficient.

The third stage is model selection. Students decide whether a total, rate, unit cost, real value, or incremental measure answers the

question. The teacher first demonstrates a complete solution on an unrelated miniature example. In the main task, prompts ask students to justify the chosen measure, not merely substitute values into a supplied formula. Support is reduced in later tasks as students become familiar with the reasoning.

The fourth stage is explanation testing. Students identify at least two plausible causes of the observed change, specify what evidence would distinguish them, and assess whether the current documents are sufficient. The process should include a disconfirming question. For example, what observation would undermine the claim that the unit has become more productive? This discourages selecting only evidence consistent with an initial impression.

The final stage is a decision memorandum and transfer task. The memorandum distinguishes established quantities, assumptions, unresolved explanations, and a conditional recommendation. An individual transfer task then presents household energy expenditure or a small enterprise's delivery costs. Students must apply the same reasoning to different surface details. This is necessary because fluency with a familiar document format may not indicate transferable economic understanding.

Assessment and implementation

The proposed assessment separates four outcomes: reconstruction accuracy, selection of economic measures, explanation quality, and calibration of conclusions. Each outcome should have its own descriptor. A high quality response calculates the relevant measure, explains why it answers the question, tests comparability, and avoids making a causal claim from descriptive data alone. A response with correct arithmetic but an unsupported causal conclusion should receive distinct feedback on those two dimensions.

Practical implementation can use three seminars rather than one overloaded session. The first addresses document reconstruction and nominal comparisons. The second introduces price adjustment and competing explanations. The third addresses noncomparability, decision communication, and transfer. This sequence is a proposed delivery option; local course hours and prerequisite knowledge determine its final form. It can be delivered with printed worksheets if spreadsheet access is limited.

Group roles should rotate between data reconstruction, conceptual challenge, and decision explanation. Every student should complete an individual calculation and a short

written inference. Students who are less familiar with accounting vocabulary should receive a concise glossary and a neutral worked example before the main task. These supports address access to the task while preserving the same economic reasoning requirement.

Teachers with audit experience can help identify credible inconsistencies and explain why a record may be incomplete. Their expertise should not make institutional custom the unstated answer key. Students must be able to earn a strong evaluation by defending a different recommendation under explicit, economically coherent assumptions. Classroom authority therefore rests on transparent reasoning criteria rather than imitation of the practitioner's preferred decision.

Discussion and future validation

The principal contribution is the separation of accurate records from adequate economic explanation. It identifies a design risk in practice based teaching: professional documents can create an impression of rigor even when the student only manipulates numbers. The inquiry protocol makes the missing inference visible and gives teachers a way to observe it. It also gives financial control expertise a substantive place in economics pedagogy without equating economics with checking expenditure.

The model does not establish that document inquiry outperforms other methods. A future study should compare it with a matched exercise sequence using identical concepts and instructional time. The primary outcome could be an independently scored novel problem requiring students to select a denominator and qualify an efficiency claim. Secondary outcomes could include computational accuracy, explanation of price changes, and confidence calibration. Satisfaction alone would be insufficient evidence of improved reasoning.

Evaluation should also record implementation. The number of documents, time spent on transcription, prompts used by the teacher, and group participation may

explain why the approach works in one class and not another. Baseline numeracy and prior accounting knowledge should be measured. If intact classes are compared, differences in instructors or prior preparation must be addressed, and causal language should match the study design. A delayed transfer task would help distinguish short term task familiarity from retained competence.

Contemporary evaluation of economics curricula also cautions against treating all educational outcomes as interchangeable. Araya et al. (2026) distinguish conventional academic outcomes from learning experience and study practices in their randomized CORE comparison. The document inquiry method proposed here requires its own evaluation; favorable reactions to realistic materials would not establish stronger causal inference or economic explanation.

The scope is intentionally limited. Financial records provide a partial representation of organizations and cannot, on their own, establish welfare effects, fairness, or long term outcomes. The method should therefore be combined with other forms of economic evidence. It is best suited to units where resource measurement and inference are central; it cannot substitute for the broader theoretical content of an economics program.

Conclusion

Financial document inquiry becomes an economics teaching method when it moves beyond reconciliation toward justified comparison and explanation. The proposed protocol separates document accuracy, accounting interpretation, and economic inference, then reconnects them through a decision task. Its worked example shows how conclusions about expenditure can change when output, prices, and comparability are examined. The framework provides practical materials and clearly defined outcomes for subsequent validation. Its central pedagogical claim is that students should learn both how to calculate from financial records and how to recognize the limits of the conclusions those records support.

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