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Taxes and Subsidies as Instruments of Government Intervention: Their Impact on Prices, Production, and Public Welfare

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Abstract

Taxation and subsidies are central instruments of government intervention that influence market prices, production decisions, resource allocation, and public welfare. This study aims to analyze their effects on market equilibrium, evaluate their economic efficiency and distributional consequences, and identify relevant considerations for sustainable fiscal policy design. A descriptive qualitative approach was employed through a narrative literature review, comparative partial-equilibrium analysis, and hypothetical numerical illustrations. Secondary materials included public economics literature, peer-reviewed studies, and relevant Indonesian policy documents. The baseline illustration showed that a per-unit tax of 2 increased the consumer price from 6 to 7 and reduced equilibrium quantity from 4 to 3, while an equivalent subsidy decreased the consumer price to 5 and increased quantity to 5. Both interventions generated a deadweight loss of 1 in an initially efficient market. Under assumed negative and positive externalities, corrective taxation and subsidies each produced a net welfare improvement of 1. Distributional analysis indicated that fiscal burdens and benefits differ across income groups, while policy sustainability depends on expenditure requirements, administrative feasibility, and institutional acceptance. The study concludes that effective fiscal intervention requires alignment between market conditions, welfare objectives, distributional equity, and fiscal capacity.

Keywords: *Economic Efficiency, Fiscal Policy, Market Equilibrium, Public Welfare, Taxation and Subsidies.*

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INTRODUCTION

Fiscal intervention through taxation and subsidies has acquired renewed significance as governments confront persistent price pressures, fiscal constraints, environmental externalities, and unequal access to essential goods. These instruments influence market outcomes through distinct but interconnected mechanisms: taxation increases the effective cost of economic activities and generates public revenue, whereas subsidies reduce the costs borne by producers or consumers while requiring fiscal expenditure. Their implications extend beyond immediate price adjustments because changes in relative prices influence production decisions, consumption patterns, resource allocation, and the distribution of economic welfare. Evidence from Indonesia indicates that fiscal policy and inflation are interconnected, making the transmission of government intervention to domestic prices an important consideration in economic management (Basconcillo, 2023). The international debate has also expanded beyond conventional revenue and expenditure considerations toward the compatibility of taxation, industrial subsidies, and environmental policy, particularly where differences in national climate policies create competing incentives for production and investment (Clausing & Wolfram, 2023). Recent assessments of fossil fuel subsidies further demonstrate that prices failing to reflect environmental and other social costs can encourage excessive resource consumption while obscuring the economic burden associated with government support (Black et al., 2025). These developments indicate that the consequences of fiscal intervention cannot be adequately evaluated through nominal tax rates, subsidy allocations, or short-term consumer price movements alone. A comprehensive economic assessment must distinguish between the immediate redistribution of purchasing power and the broader efficiency consequences arising from changes in production, consumption, and external costs. For Indonesia, where taxation and energy subsidies intersect with household purchasing power,

productive activity, and public expenditure priorities, the central analytical problem concerns whether government intervention improves aggregate welfare while distributing its economic consequences consistently with the intended policy objectives.

Contemporary research on taxation and subsidies has developed along several interconnected analytical directions, particularly fiscal transmission, environmental efficiency, distributive welfare, and the political economy of policy reform. Studies addressing fiscal transmission examine how government revenue and expenditure decisions interact with macroeconomic conditions, while research on environmental intervention evaluates whether fiscal instruments can correct socially inefficient production and consumption incentives. Within the latter literature, the effectiveness of taxation and subsidy policies increasingly depends on the relationship between their direct market effects and the social value of the behavioral adjustments they induce. Welfare-oriented analysis of climate policies provides a basis for distinguishing the economic costs of intervention from the benefits associated with reduced environmental damage, rather than treating expenditure or price changes as sufficient measures of policy performance (Hahn et al., 2026). Research examining alternative fossil fuel subsidy removal schemes similarly connects subsidy reform with economic welfare and environmental quality, indicating that the consequences of removing government support must be assessed against the characteristics of the replacement policy rather than the withdrawal decision alone (Okorie & Wesseh, 2024). A related body of scholarship emphasizes that distributional consequences and institutional conditions influence whether reforms are socially sustainable. Evidence concerning Indonesia's energy subsidy policy identifies equity and efficiency as interdependent considerations, particularly when generalized price support must be reconciled with inclusive reform objectives (Gobel et al., 2024). Comparative research on consumer energy subsidy reforms extends this discussion by examining the conditions associated with successful and unsuccessful reform experiences across different settings (Gasim et al., 2026). Taken together, these contributions establish a state of the art in which fiscal instruments are increasingly assessed through multiple dimensions of welfare, although their analytical emphasis frequently remains concentrated on particular policy instruments, sectors, or reform outcomes.

Despite these advances, a specific conceptual and methodological gap remains in the comparative explanation of how taxation and subsidies transmit their effects through market prices, production quantities, fiscal balances, and welfare distribution within a consistent analytical structure. Macroeconomic investigations of fiscal transmission provide information about aggregate price responses but do not necessarily identify the microeconomic allocation of tax burdens and subsidy benefits between consumers and producers. Conversely, environmental welfare assessments clarify the social justification for corrective intervention but address questions that differ from the distributional consequences of ordinary market taxation and generalized consumption subsidies. Research on subsidy reform introduces a further distinction between economic efficiency and political feasibility, since policies that improve fiscal or environmental outcomes may encounter resistance when their immediate costs are concentrated among identifiable groups. Analysis of fossil fuel subsidy reform and civil unrest demonstrates why distributive justice and social responses cannot be separated from the assessment of reform consequences (Belgioioso & Newman, 2025). The increasing fragility of fossil fuel subsidy reforms also indicates that the durability of policy adjustment constitutes a distinct concern from its theoretical economic justification (Mahdavi et al., 2025). These contributions identify important dimensions of intervention, but their different research questions do not, individually, provide a directly comparable explanation of the opposing price and quantity effects of taxes and subsidies under equivalent market assumptions. The research gap addressed here is therefore not an absence of scholarship on fiscal intervention, nor a claim that taxation and subsidies have never been compared, but the need for an integrated and accessible analytical synthesis linking economic incidence, production responses, deadweight loss, externalities, and distributional welfare. This gap is particularly relevant to a literature-based study because the analytical relationships among these dimensions can be examined systematically without claiming to estimate actual policy effects or establish causal relationships from observed Indonesian market data.

The absence of an integrated assessment has implications for both economic reasoning and the formulation of public policy. Evaluating taxation primarily through revenue generation can obscure the reduction in mutually beneficial transactions, the unequal distribution of burdens, and the possibility that higher prices correct previously unaccounted social costs. Assessing subsidies

predominantly through consumer price reductions presents a corresponding problem because lower prices may increase consumption without ensuring that the resulting benefits reach intended recipients or exceed the associated fiscal expenditure. These analytical limitations become especially consequential when governments must choose between generalized price support, targeted assistance, and corrective fiscal measures under restricted budgetary conditions. Indonesia's experience demonstrates that subsidy reform is not exclusively a technical adjustment to public expenditure, since competing interpretations of fuel pricing and government responsibility influence how policy changes are understood and contested (Jazuli et al., 2026). International evidence concerning reform fragility reinforces the importance of distinguishing the theoretical welfare gains associated with removing inefficient support from the institutional and distributional conditions required to sustain those gains (Mahdavi et al., 2025). The practical significance of this distinction extends to policy sequencing, beneficiary identification, fiscal transparency, and the treatment of households and producers exposed to abrupt changes in effective prices. At the theoretical level, insufficient differentiation between market efficiency and distributional equity risks producing evaluations that classify an intervention as beneficial merely because aggregate output, government revenue, or consumer purchasing power changes in the desired direction. A more rigorous assessment must establish whether observed or theoretically derived changes represent welfare improvements after accounting for fiscal costs, foregone transactions, external effects, and the distribution of gains and losses. Such an assessment also provides a clearer basis for explaining why identical nominal interventions can generate different consequences across markets with different demand and supply elasticities.

The present study is positioned as a descriptive qualitative literature review that integrates the microeconomic mechanisms of taxation and subsidies into a common comparative framework, supported by simplified partial-equilibrium illustrations and contextual interpretation of Indonesian fiscal intervention. Its proposed contribution differs from macroeconomic fiscal analysis, which emphasizes aggregate price relationships, and from sector-specific subsidy research, which frequently concentrates on energy consumption, environmental outcomes, or the political sustainability of reform. Rather than treating taxation and subsidies as unrelated policy categories, the study examines both as interventions that create differences between the prices faced by buyers and sellers, alter equilibrium quantities, and redistribute economic benefits and costs. The analytical framework distinguishes ordinary market interventions from corrective measures addressing externalities, thereby avoiding the assumption that every reduction or expansion in transactions necessarily represents an equivalent change in social welfare. Its comparative structure also incorporates demand and supply elasticity to explain differences in economic incidence, alongside fiscal expenditure and revenue considerations that determine the net consequences of intervention. This approach complements welfare analysis of climate-related policies by applying the distinction between private market outcomes and broader social consequences to a general comparison of fiscal instruments (Hahn et al., 2026). It also extends the conceptual relevance of research on alternative subsidy removal schemes by examining taxation and subsidies under comparable market conditions before considering the implications of policy design (Okorie & Wesseh, 2024). The study's novelty lies in the structured synthesis of price transmission, production adjustment, surplus redistribution, externality correction, and fiscal consequences within a single explanatory sequence, rather than in the development of a new economic theory or the production of previously unavailable empirical estimates. Hypothetical numerical illustrations are used to make these relationships transparent, while Indonesian policy examples establish practical relevance without being represented as empirical tests of policy effectiveness. This positioning permits a focused contribution to public economics scholarship through analytical integration and methodological clarity, while preserving the distinction between established theoretical mechanisms, findings reported in previous research, and implications derived from simplified illustrative assumptions.

This study aims to explain the operating mechanisms of taxation and subsidies as instruments of government intervention, compare their effects on market prices and production quantities, and evaluate their implications for economic efficiency, distributional equity, and public welfare. More specifically, it examines how per-unit taxes and subsidies change the prices paid by consumers and received by producers, how demand and supply elasticities influence the distribution of policy burdens and benefits, and how resulting adjustments in market transactions affect consumer surplus,

producer surplus, and the government budget. The analysis also distinguishes interventions that generate welfare losses in otherwise efficient markets from corrective measures that may improve welfare by addressing negative or positive externalities. These objectives are addressed through a descriptive qualitative review of relevant economic literature, comparative partial-equilibrium analysis, and hypothetical numerical illustrations designed to demonstrate the relationships among prices, quantities, fiscal transfers, and welfare changes. Indonesian fiscal policies provide contextual examples for interpreting the practical implications of the analytical framework without extending the study into an empirical evaluation of particular tax or subsidy programs. The principal theoretical contribution is an integrated explanation of taxation and subsidies that clarifies their similarities, opposing market effects, and conditional welfare consequences under explicitly defined assumptions. Its methodological contribution consists of a transparent comparative structure that connects conceptual propositions with simplified calculations, allowing the implications of elasticity, externalities, and fiscal transfers to be examined consistently. At the practical level, the study seeks to establish an analytical basis for evaluating whether government intervention is economically justified, whether its burdens and benefits are appropriately distributed, and whether its intended outcomes are compatible with fiscal sustainability and administrative feasibility. The resulting framework is intended to support more coherent fiscal policy assessment while providing a conceptual foundation for subsequent empirical investigations of taxation, subsidies, and welfare outcomes in specific Indonesian markets.

RESEARCH METHODS

This study employed a descriptive qualitative research design based on a narrative literature review, supported by comparative partial-equilibrium analysis and hypothetical numerical illustrations. The research examined taxation and subsidies as instruments of government intervention, with particular attention to their effects on market prices, production quantities, economic efficiency, and public welfare. The analytical materials consisted of secondary sources, including public economics textbooks, peer-reviewed journal articles addressing taxation, subsidy policies, fiscal intervention, and welfare economics, and Indonesian legal and regulatory documents relevant to taxation and fuel subsidies. Sources were selected according to their substantive relevance to three principal analytical dimensions: price formation, production adjustment, and welfare consequences. Materials addressing only technical tax administration or budgetary procedures without examining market behavior were excluded from the analytical discussion. Foundational economic literature was used to establish the conceptual relationships among market equilibrium, elasticity, economic incidence, externalities, and surplus, while contemporary research provided evidence concerning fiscal transmission, subsidy reform, distributional consequences, and policy implementation. Indonesian legislation and fuel subsidy regulations were examined as contextual policy materials rather than as sources of empirical measurements. The units of analysis were the economic mechanisms through which taxation and subsidies influence consumer and producer prices, transaction quantities, fiscal transfers, and the allocation of welfare. The study did not involve field observations, interviews, surveys, experimental participants, or primary data collection. Its numerical illustrations were constructed from simplified hypothetical market conditions and were not intended to represent actual commodities, observed transactions, or estimated parameters of the Indonesian economy.

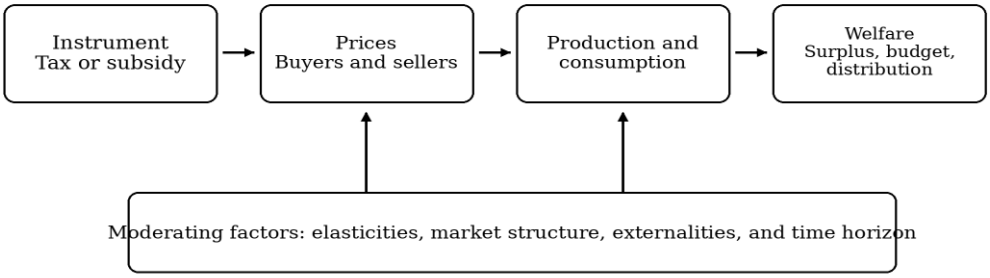


Figure 1. Conceptual Framework of the Effects of Taxes and Subsidies

The analytical procedure consisted of three interconnected stages. First, the economic effects of taxation and subsidies were examined using a partial-equilibrium framework incorporating supply and demand relationships, consumer surplus, producer surplus, government revenue or expenditure, and deadweight loss. Per-unit taxation and subsidies were represented as changes in the effective prices faced by consumers and producers, allowing their implications for equilibrium prices and transaction quantities to be compared under consistent market assumptions. Second, hypothetical numerical illustrations were developed using linear demand and supply functions to demonstrate changes in market equilibrium, the distribution of tax burdens and subsidy benefits, and the resulting welfare consequences. The illustrations included a baseline market comparison, alternative demand-elasticity conditions, and cases involving negative and positive externalities. Changes in consumer and producer surplus were assessed alongside government revenue or subsidy expenditure to distinguish private market benefits from net social welfare effects. A separate hypothetical household comparison was used to illustrate differences between the nominal distribution of fiscal burdens or benefits and their relative significance across income levels, without estimating actual household welfare. Third, findings from the selected literature were synthesized thematically and compared with the implications of the numerical illustrations to identify consistent economic mechanisms, conditional relationships, and relevant policy-design considerations. Analytical rigor was supported through comparison of foundational and contemporary sources, explicit identification of hypothetical assumptions, and examination of differences between theoretical predictions and the contextual findings reported in existing research. The calculations were interpreted within the limitations of partial-equilibrium analysis, which does not capture interactions across multiple markets or establish long-term behavioral responses. The resulting synthesis provided the basis for evaluating taxation and subsidies according to policy effectiveness, economic efficiency, distributional equity, fiscal sustainability, and implementation feasibility, without treating conceptual illustrations as empirical evidence of actual policy outcomes. The conceptual framework presented in Figure 1 illustrates the analytical relationships among taxation, subsidies, market prices, production adjustments, and social welfare, incorporating elasticity, externalities, and fiscal consequences as relevant considerations.

RESULTS AND DISCUSSION

Market Equilibrium, Price Transmission, and Production Responses to Taxation and Subsidies

The comparative partial-equilibrium analysis identifies taxation and subsidies as fiscal instruments that modify market outcomes by creating a difference between the price paid by consumers and the effective price received by producers. Although the instruments operate in opposite directions, their effects depend on the interaction between demand, supply, and the behavioral responses of market participants. A per-unit tax increases the effective cost of market transactions, whereas a per-unit subsidy reduces the cost borne by one side of the market and creates incentives for additional transactions. The distinction between these mechanisms is consistent with the broader economic interpretation of fiscal intervention as a means of influencing prices and resource allocation rather than merely adjusting government revenue or expenditure (Basconcillo, 2023).

Under the competitive-market assumptions adopted in the numerical illustrations, a tax imposed on producers shifts the supply schedule upward by the amount of the tax, increasing the price paid by

consumers while reducing the net price retained by producers. The resulting contraction in equilibrium quantity reflects the elimination of transactions for which the willingness to pay no longer covers the tax-inclusive supply price. The statutory responsibility for remitting the tax does not independently determine its economic incidence because the ultimate distribution of the burden depends on the relative responsiveness of buyers and sellers. This mechanism provides a microeconomic foundation for interpreting fiscal price transmission, although aggregate inflation responses also depend on macroeconomic relationships that cannot be established through partial-equilibrium calculations alone (Basconcillo, 2023).

Subsidies generate an opposing adjustment by reducing effective production costs or increasing the amount received by producers for each unit supplied. In a competitive market, a producer subsidy shifts the effective supply schedule downward, permitting a lower consumer price and a higher quantity of transactions while increasing the government's expenditure obligations. The resulting expansion of production is not necessarily equivalent to an improvement in social welfare because additional output may generate benefits below its resource cost when no market failure is present. Research on fossil fuel subsidy removal illustrates the relevance of distinguishing production and consumption incentives from welfare and environmental consequences, particularly when alternative policy arrangements produce different economic adjustments (Okorie & Wesseh, 2024).

Research on fossil fuel subsidy removal illustrates the relevance of distinguishing production and consumption incentives from welfare and environmental consequences, particularly when alternative policy arrangements produce different economic adjustments (Okorie & Wesseh, 2024). The opposing adjustments in market equilibrium resulting from per-unit taxation and subsidies are illustrated in Figure 2, which distinguishes changes in consumer prices, producer receipts, and equilibrium quantities under competitive-market assumptions.

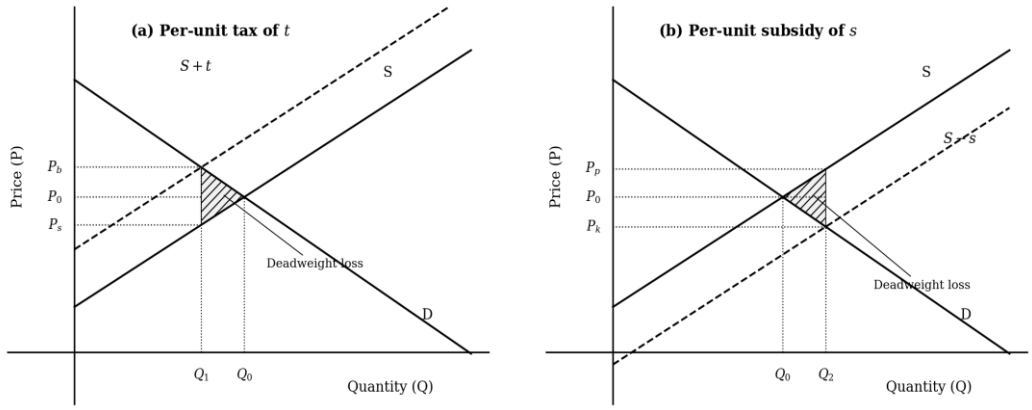


Figure 2. Effects of Per-Unit Taxes and Subsidies on Market Equilibrium

The hypothetical market specified in the research design permits the opposing effects of these instruments to be compared under identical demand and supply conditions. The initial demand function is expressed as \(P=10-Q\), while the supply function is \(P=2+Q\), producing an equilibrium price of 6 and an equilibrium quantity of 4. Applying a per-unit tax or subsidy of 2 changes the equilibrium through the corresponding adjustment in the effective supply relationship, without altering the underlying demand function. Table 1 presents the calculated market outcomes, including the separation between consumer prices and producer receipts and the associated fiscal consequences.

Table 1. Comparative Effects of Per-Unit Taxation and Subsidies on Hypothetical Market Equilibrium

Market indicator	No intervention	Per-unit tax of 2	Per-unit subsidy of 2
Consumer price	6.00	7.00	5.00
Net producer receipt	6.00	5.00	7.00
Equilibrium quantity	4.00	3.00	5.00

Change in consumer surplus	0.00	−3.50	+4.50
Change in producer surplus	0.00	−3.50	+4.50
Government revenue	0.00	+6.00	0.00
Government subsidy expenditure	0.00	0.00	10.00
Change in net social welfare	0.00	−1.00	−1.00

Source: Authors' calculations based on hypothetical linear demand and supply functions.

The calculations in Table 1 demonstrate that a tax of 2 increases the consumer price from 6 to 7, reduces the net producer receipt to 5, and contracts the equilibrium quantity from 4 to 3. The subsidy produces the opposite market adjustment, reducing the consumer price to 5, increasing the producer receipt to 7, and expanding the equilibrium quantity to 5. Despite these contrasting price and production effects, both interventions generate a net welfare loss of 1 under the assumption that the initial competitive equilibrium contains no externalities or other market distortions. This result is consistent with the distinction between market-level transfers and welfare improvements emphasized in economic evaluations of corrective fiscal policies (Hahn et al., 2026).

The identical welfare losses in the baseline illustration do not imply that taxation and subsidies are economically interchangeable across different market conditions. Their distributional consequences differ because taxation transfers resources from market participants to the government, whereas subsidies transfer publicly financed resources toward consumers and producers. These fiscal transfers must be incorporated into welfare calculations to prevent changes in private surplus from being mistaken for changes in aggregate economic efficiency. The significance of this distinction becomes apparent in contemporary assessments of fossil fuel support, where the difference between market prices and socially relevant costs complicates the interpretation of apparent consumer benefits (Black et al., 2025).

Demand elasticity introduces an additional source of variation in the distribution of tax burdens and the magnitude of production adjustments. When consumers are relatively unresponsive to price increases, a larger proportion of a per-unit tax can be transferred to buyers, whereas more responsive demand requires producers to absorb a greater share through lower net receipts. The original hypothetical sensitivity analysis illustrates this mechanism by comparing relatively less elastic and more elastic demand schedules while maintaining the same initial equilibrium and supply relationship. Such differences are relevant to the design of environmental and consumption-related fiscal measures because behavioral responses influence both the effectiveness of intervention and the allocation of its economic consequences (Clausing & Wolfram, 2023).

Production responses also depend on whether the intervention affects final consumption or the costs of inputs used in productive activities. Taxes imposed on production inputs can alter relative input prices and influence firms' production decisions, while input subsidies may encourage greater use of supported resources even when alternative production techniques are economically preferable. The resulting implications cannot be reduced to a simple increase or decrease in output because production efficiency also depends on the composition and opportunity costs of the resources employed. Research examining Indonesia's energy subsidy arrangements highlights the relevance of considering efficiency alongside distributional objectives when evaluating the economic justification for government support (Gobel et al., 2024).

The analytical comparison establishes that the direction of price and quantity adjustments can be derived from the structure of the fiscal instrument, but the welfare interpretation requires additional assumptions concerning market efficiency, externalities, and the distribution of costs. A reduction in production following taxation may represent an efficiency loss in an undistorted market but a corrective adjustment when the original level of activity imposes unaccounted social costs. Similarly, subsidy-induced production growth may improve welfare when it addresses underproduction associated with positive externalities, while generating additional distortions when it encourages activities whose social costs exceed their benefits. This conditional interpretation corresponds to the distinction between economic welfare and environmental quality examined in analyses of alternative subsidy reform schemes (Okorie & Wesseh, 2024). The partial-equilibrium framework consequently provides a transparent explanation of immediate market adjustments without claiming to establish actual Indonesian price responses, sectoral production changes, or long-term macroeconomic outcomes.

Economic Efficiency, Externality Correction, and Distributional Consequences of Fiscal Intervention

The welfare implications of taxation and subsidies cannot be established exclusively through changes in equilibrium prices and production quantities because market transactions do not necessarily reflect their full social costs and benefits. In the absence of externalities, fiscal intervention may displace an efficient competitive equilibrium and generate deadweight loss, whereas the presence of unaccounted social effects can justify departures from the unregulated market outcome. This distinction requires separating the private surplus received by consumers and producers from the broader welfare consequences of production and consumption. Contemporary welfare analysis of climate-related policies reinforces the importance of evaluating fiscal instruments according to their social benefits and economic costs rather than interpreting every market distortion as inherently undesirable (Hahn et al., 2026).

Corrective taxation becomes economically relevant when production or consumption imposes negative externalities that are excluded from private market prices. Under these conditions, the market equilibrium quantity exceeds the socially efficient level because individual producers and consumers do not bear the full marginal social cost associated with their transactions. A tax corresponding to the marginal external damage can reduce economic activity toward the socially efficient quantity, although the appropriateness of its rate depends on the accuracy of the underlying damage assessment. Research concerning carbon border adjustments and differences in national climate policies illustrates the additional complexity of corrective intervention when production incentives and environmental obligations differ across jurisdictions (Clausing & Wolfram, 2023).

Subsidies may serve a corresponding corrective function when economic activities generate positive externalities that are not adequately reflected in the private benefits received by market participants. In such circumstances, the unregulated equilibrium can produce fewer units than would maximize social welfare, creating a justification for public support that encourages additional production or consumption. The welfare justification nevertheless depends on whether the marginal social benefit of additional activity exceeds its marginal resource cost and the associated fiscal burden. Evaluations of fossil fuel subsidy arrangements demonstrate why the existence of government support cannot independently establish its economic desirability, particularly when subsidized consumption also produces environmental consequences (Black et al., 2025).

The distinction between distortionary and corrective intervention can be examined through the hypothetical market employed in the preceding analysis. The baseline demand and supply functions are retained, while a marginal external damage of 2 per unit is introduced for the negative-externality scenario and a marginal external benefit of 2 per unit is introduced for the positive-externality scenario. These assumptions permit the socially efficient quantities to be calculated without changing the original private market equilibrium, thereby isolating the influence of external costs and benefits. Table 2 presents the resulting comparison and demonstrates how identical per-unit interventions can generate welfare improvements when they correct a specified market failure.

Table 2. Welfare Implications of Corrective Taxation and Subsidies Under Hypothetical Externalities

Analytical component	Corrective tax: negative externality	Corrective subsidy: positive externality
Initial market equilibrium quantity	4.00	4.00
Marginal external damage or benefit	2.00	2.00
Socially efficient quantity	3.00	5.00
Per-unit fiscal intervention	Tax of 2.00	Subsidy of 2.00
Quantity after intervention	3.00	5.00
Government revenue	6.00	0.00
Government expenditure	0.00	10.00
Initial welfare loss from externality	1.00	1.00

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Net social welfare improvement	+1.00	+1.00

Source: Authors' calculations using hypothetical linear demand and supply functions and assumed constant marginal external effects.

The calculations in Table 2 indicate that the socially efficient quantity under a negative production externality decreases from 4 to 3 because the marginal social cost exceeds the private marginal production cost by 2. A corrective tax of the same amount reduces equilibrium production to the socially efficient level and eliminates the welfare loss associated with the original excess output. Under the positive-externality scenario, a subsidy of 2 increases production from 4 to 5, correcting the initial shortfall relative to the socially efficient quantity. Both interventions generate a welfare improvement of 1 under their respective assumptions, illustrating the conditional relationship between fiscal intervention and welfare enhancement examined in contemporary research on economic and environmental policy design (Okorie & Wesseh, 2024).

The symmetry of the calculated welfare improvements depends on the simplified structure of the illustrative market and should not be interpreted as evidence that corrective taxes and subsidies are equally effective in actual economies. Environmental damages, technological conditions, consumer preferences, and institutional constraints can differ substantially across sectors, making the estimation of socially appropriate intervention levels considerably more complex. The economic justification for a corrective instrument also requires distinguishing its intended effect on marginal incentives from broader consequences for investment, production relocation, and the distribution of adjustment costs. Research on climate-related fiscal policies indicates that welfare evaluation must account for policy-specific costs and benefits, while international differences in environmental intervention can influence the incentives confronting producers (Hahn et al., 2026; Clausing & Wolfram, 2023).

Distributional equity introduces a further distinction between aggregate welfare improvements and the allocation of economic burdens across households. Consumption taxation can impose a greater relative burden on lower-income households when expenditure on the taxed commodity represents a larger proportion of their income, even when higher-income households make larger absolute tax payments. Generalized price subsidies create an opposing but equally consequential distributional issue because households with greater consumption may receive larger nominal benefits despite having a lower relative dependence on government assistance. Research examining Indonesia's energy subsidy policy identifies the relationship between equity, efficiency, and inclusive reform as a central consideration in evaluating whether public expenditure reaches the populations it is intended to support (Gobel et al., 2024).

The distributional illustration in the original analytical materials further clarifies the difference between absolute fiscal benefits and their proportional significance for household welfare. Under the hypothetical assumption of unchanged consumption quantities, a household with income of 100 purchasing 10 units of a commodity bears a tax equivalent to 5% of its income, whereas a household with income of 1,000 purchasing 40 units bears a corresponding burden of 2%. A proportional price subsidy produces a different distributional interpretation because the higher-income household receives a larger nominal benefit, while the lower-income household obtains assistance representing a greater share of its income. These distinctions reinforce the relevance of distributive justice in subsidy policy, particularly because the allocation of reform costs can affect public acceptance independently of aggregate fiscal or efficiency considerations (Belgioioso & Newman, 2025).

Fiscal sustainability constitutes another component of welfare evaluation because subsidies require public resources that could otherwise finance alternative expenditures, while taxation creates revenue that may support public services or other policy objectives. The economic cost of a subsidy consequently extends beyond its immediate effect on the market price, particularly when public support encourages consumption that would decline if users faced prices reflecting the full social cost of the activity. International assessments of fossil fuel subsidies emphasize the significance of underpricing and excessive consumption, while research on subsidy reform identifies the durability of policy changes as a separate challenge for governments attempting to reduce established fiscal commitments (Black et al., 2025; Mahdavi et al., 2025). A welfare assessment that considers market surplus without examining fiscal expenditure, external costs, and the persistence of intervention would provide an incomplete account of the economic consequences of government support.

The relationship between efficiency and equity is especially consequential when corrective intervention generates concentrated adjustment costs among households or producers with limited capacity to respond. A theoretically efficient reduction in subsidized consumption may create immediate financial pressure on affected groups, while the resulting fiscal savings or environmental benefits may emerge through different channels and over longer periods. Comparative research on consumer energy subsidy reforms identifies variation in reform experiences, supporting the need to distinguish the economic rationale for policy adjustment from the conditions under which implementation can be sustained (Gasim et al., 2026). The analytical implication is that welfare-enhancing fiscal intervention requires coherence among marginal incentives, fiscal consequences, distributional objectives, and implementation arrangements, rather than reliance on price adjustment or aggregate surplus as isolated indicators of policy success.

Policy Design, Institutional Constraints, and the Sustainability of Taxation and Subsidy Interventions

The effectiveness of taxation and subsidy policies depends not only on their theoretical capacity to alter market equilibrium but also on the institutional conditions governing their implementation. Fiscal instruments that generate desirable outcomes under simplified competitive-market assumptions may produce different consequences when administrative limitations, unequal access to public support, and political resistance influence economic behavior. These considerations are particularly relevant to developing economies, where policy implementation must reconcile revenue requirements, household purchasing power, productive efficiency, and public expenditure constraints. Research on Indonesia's energy subsidy policy demonstrates that the pursuit of economic efficiency must be evaluated alongside distributional equity and the institutional requirements of inclusive reform (Gobel et al., 2024).

Tax policy design requires consideration of the relationship between revenue generation, price transmission, and the behavioral responses of consumers and producers. An increase in taxation may expand government revenue under a given set of market conditions, but the associated adjustment in prices and transaction quantities can alter the expected revenue base. The relative elasticity of demand and supply influences the distribution of the tax burden, while market structure and administrative conditions determine whether theoretical incidence relationships adequately describe practical outcomes. Evidence concerning the interaction between fiscal policy and inflation in Indonesia supports the relevance of examining price consequences beyond the immediate statutory characteristics of a tax instrument (Basconcillo, 2023).

Subsidy policy presents a different implementation problem because reductions in consumer prices can generate immediate private benefits while transferring substantial financial obligations to the public budget. Generalized price subsidies are particularly difficult to reconcile with distributional objectives when eligibility depends primarily on consumption rather than household economic circumstances. Their effectiveness must consequently be assessed through the relationship between affordability, consumption incentives, beneficiary characteristics, and the opportunity costs of government expenditure. International assessments of fossil fuel subsidies indicate that underpricing can encourage excessive consumption, strengthening the analytical case for evaluating subsidy expenditure against its broader economic and environmental consequences (Black et al., 2025).

Policy alternatives can be evaluated through a common set of criteria derived from the comparative analysis of taxation, subsidies, market efficiency, and distributional welfare. The relevant dimensions include effectiveness in achieving the intended objective, efficiency in allocating resources, equity in distributing burdens and benefits, fiscal sustainability, and administrative feasibility. These criteria are analytically distinct because a measure may improve affordability without providing an efficient allocation of resources, or improve fiscal sustainability while imposing substantial adjustment costs on vulnerable households. Table 3 presents the qualitative evaluation framework used to examine the principal policy-design considerations associated with both instruments.

Table 3. Comparative Policy Evaluation Framework for Taxation and Subsidy Instruments

Evaluation criterion	Taxation	Subsidies	Principal evaluation indicator
Policy effectiveness	Revenue generation or correction of undesirable activities	Affordability, production support, or correction of underprovision	Achievement of stated policy objectives
Economic efficiency	Potential transaction losses or correction of negative externalities	Potential overproduction or correction of positive externalities	Changes in surplus and deadweight loss
Distributional equity	Allocation of tax burdens across income groups	Allocation of benefits across eligible and noneligible groups	Relative and absolute incidence
Fiscal sustainability	Revenue stability and collection costs	Expenditure requirements and fiscal opportunity costs	Net fiscal consequences
Implementation feasibility	Compliance, administration, and enforcement	Beneficiary identification, delivery, and monitoring	Administrative capacity and policy leakage

Source: Authors' analytical synthesis based on the comparative literature review and the evaluation criteria established in the research framework.

The framework in Table 3 indicates that taxation and subsidies should be evaluated against their intended economic functions rather than through identical performance expectations. Taxation may be considered effective when it generates required revenue or discourages activities associated with negative externalities, whereas subsidies may be justified when they address affordability constraints or encourage activities generating positive social benefits. These objectives do not eliminate the need to examine unintended consequences because an intervention can satisfy its immediate target while producing adverse effects on distributional equity or resource allocation. Comparative research on consumer energy subsidy reforms reinforces the significance of policy design and implementation conditions when explaining differences between successful and unsuccessful reform experiences (Gasim et al., 2026).

The political economy of subsidy reform creates additional constraints that are not captured by conventional supply-and-demand calculations. Consumers and producers benefiting from established subsidies may oppose reform because the withdrawal of support produces visible and immediate costs, while potential efficiency gains or fiscal savings are less directly attributable to individual beneficiaries. Research on fossil fuel subsidy reform and civil unrest identifies distributive justice as a relevant dimension of reform outcomes, indicating that the allocation of adjustment burdens can influence social responses to government intervention (Belgioioso & Newman, 2025). Evidence concerning the increasing fragility of fossil fuel subsidy reforms further suggests that the persistence of policy changes cannot be inferred solely from their anticipated economic benefits (Mahdavi et al., 2025).

Indonesia's experience with fuel subsidy adjustment illustrates the relationship between economic policy design and the institutional interpretation of government responsibilities. Subsidy reductions affect the prices faced by households and producers, but their political significance also depends on how the objectives, distributional consequences, and legitimacy of reform are communicated and contested. A discourse-oriented examination of Indonesia's fuel subsidy reduction experiences between 1998 and 2019 provides a basis for considering the political economy of reform beyond the technical calculation of fiscal savings (Jazuli et al., 2026). The implication for economic analysis is that institutional acceptance and distributive consequences must be distinguished from the theoretical efficiency properties of the intervention itself.

Coordination between taxation and subsidies presents a further policy-design consideration because the two instruments may reinforce or counteract one another when applied to related economic activities. Environmental taxation can increase the private cost of activities generating negative externalities, while appropriately targeted subsidies may encourage alternatives associated with positive social benefits. Inconsistent policy arrangements may weaken the intended price signals

when support for resource-intensive consumption offsets incentives created by corrective taxation. Research on carbon border adjustments, climate clubs, and subsidy competition demonstrates that differences in fiscal and environmental policies can influence production incentives across jurisdictions, complicating the design of coordinated intervention (Clausing & Wolfram, 2023).

The temporal dimension of intervention also influences policy sustainability because immediate market adjustments may differ from longer-term behavioral and institutional responses. Short-term subsidies can moderate price pressures, but prolonged support may influence consumption decisions, production techniques, and expectations regarding continued government assistance. The economic implications of subsidy withdrawal consequently depend on the replacement arrangements and the capacity of affected market participants to adjust, rather than on the removal of fiscal expenditure alone. Research examining alternative fossil fuel subsidy removal schemes connects welfare and environmental outcomes to policy configuration, supporting the need to evaluate reform alternatives rather than assuming that a single withdrawal mechanism produces universally preferable results (Okorie & Wesseh, 2024).

The integrated analytical framework indicates that effective fiscal intervention requires consistency between the economic problem being addressed, the instrument selected, the distribution of its consequences, and the institutional capacity available for implementation. Taxes and subsidies can alter prices and production in predictable directions under specified market assumptions, but their welfare effects remain conditional on externalities, elasticity, fiscal costs, and the allocation of benefits and burdens. Welfare-oriented evaluations of climate policies support the distinction between immediate market effects and broader social consequences, while comparative subsidy reform research identifies implementation conditions as an additional consideration in assessing policy sustainability (Hahn et al., 2026; Gasim et al., 2026). For Indonesia, these relationships provide a conceptual basis for evaluating fiscal intervention through transparent policy objectives, distribution-sensitive assessment, and periodic review, without implying that the hypothetical calculations establish actual causal effects in domestic commodity markets.

CONCLUSION

This study concludes that taxation and subsidies influence market prices, production quantities, and public welfare through distinct but interconnected economic mechanisms. The partial-equilibrium analysis demonstrates that per-unit taxation increases consumer prices, reduces net producer receipts, and contracts equilibrium production, whereas subsidies reduce consumer prices, increase producer receipts, and expand market transactions. Under the hypothetical competitive-market conditions examined, a tax or subsidy of 2 generates an identical deadweight loss of 1 when the initial equilibrium contains no externalities. The welfare implications change when market failures are introduced, as corrective taxation addressing negative externalities and subsidies addressing positive externalities each produce a hypothetical net welfare improvement of 1. These findings establish that the economic justification for fiscal intervention depends on the relationship between private incentives, social costs and benefits, and the conditions governing market efficiency.

The analysis further establishes that economic efficiency alone is insufficient for evaluating the appropriateness of taxation and subsidy policies. Differences in demand elasticity affect tax incidence and production adjustments, while household income and consumption patterns influence the relative distribution of fiscal burdens and benefits. Subsidy arrangements may improve affordability but also generate substantial public expenditure, encourage inefficient consumption, and distribute larger nominal benefits to households with greater purchasing capacity. The principal contribution of this study is an integrated analytical framework connecting market equilibrium, externality correction, distributional equity, fiscal sustainability, and implementation feasibility within a consistent comparison of taxation and subsidies. For fiscal policy design in Indonesia, the findings support the evaluation of intervention instruments according to clearly specified economic objectives, their distributional consequences, and their compatibility with available public resources and administrative capacity. Because the study relies on literature synthesis and hypothetical numerical illustrations rather than observed market data, its conclusions explain theoretical mechanisms and policy considerations without establishing empirical causal effects or estimating actual national welfare changes.

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