

**Dynamics of the Regressivity and Progressivity of
LPG Subsidies and the Dignity Tariff in Ecuador,
2007–2025**Dinámica de regresividad y progresividad de los subsidios al GLP y Tarifa
dignidad en Ecuador, 2007-2025**Francisco Wladimir Santana Santacruz**

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Los subsidios energéticos han sido instrumentos claves de política social para el Ecuador; la discusión ha girado en torno a su potencial distributivo y sostenibilidad fiscal. El artículo estudia comparativamente la regresividad del subsidio al Gas Licuado de Petróleo y la progresividad de la Tarifa de la Dignidad en el periodo 2007–2025, con énfasis en la incidencia distributiva y los efectos sociales. La investigación adoptó un enfoque cualitativo mediante una revisión bibliográfica de 26 documentos publicados principalmente entre 2021 y 2025, entre ellos artículos científicos revisados por pares, informes técnicos y documentos institucionales relacionados con los subsidios energéticos y su incidencia distributiva. El estudio se llevó a cabo a partir de la interpretación y contrastación del diseño institucional de los subsidios, sus instituciones, procedimientos de asignación y los patrones de acumulación de beneficios por nivel de ingresos. El análisis muestra que el subsidio al GLP, dado su funcionamiento bajo un sistema universal de reducción del precio final del mismo, tiene un carácter estructuralmente regresivo, puesto que los mayores beneficios se concentran en los hogares de mayores ingresos, lo cual produce un elevado coste fiscal. En cambio, la Tarifa de la Dignidad muestra un comportamiento relativamente progresivo al ser un subsidio focalizado mediante umbrales técnicos de consumo eléctrico, puesto que concentra sus beneficios en hogares vulnerables. Se concluye que la eventual progresividad de los subsidios energéticos depende del diseño de los mismos.

Palabras clave: Subsidios energéticos; regresividad; progresividad; GLP; Tarifa de la Dignidad y focalización.**Abstract**

Energy subsidies have been key instruments of social policy in Ecuador; the discussion has revolved around their distributive potential and fiscal sustainability. The article comparatively examines the regressivity of the Liquefied Petroleum Gas subsidy and the progressivity of the Dignity Tariff during the 2007–2025 period, with an emphasis on distributive incidence and social effects. The research adopted a qualitative approach through a literature review of 26 documents published mainly between 2021 and 2025, including peer-reviewed scientific articles, technical reports, and institutional documents related to energy subsidies and their distributive incidence. The study was conducted through the interpretation and comparison of the institutional design of the subsidies, their institutions, allocation procedures, and patterns of benefit accumulation by income level. The analysis shows that the LPG subsidy, given its operation under a universal system that reduces its final price, is structurally regressive, since the greatest benefits are concentrated among higher-income households, which generates a high fiscal cost. In contrast, the Dignity Tariff shows relatively progressive behavior because it is a subsidy targeted through technical electricity consumption thresholds, as it concentrates its benefits on vulnerable households. It is concluded that the potential progressivity of energy subsidies depends on their design.

Keywords: Energy subsidies; Regressivity; Progressivity; LPG; Dignity Tariff, and Targeting.**OPEN ACCESS**
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Introduction

Energy subsidies in Latin America have historically been conceived as social protection instruments aimed at guaranteeing universal access to strategic services, preventing social and economic exclusion, and stabilizing the cost of the energy basket (Lazo et al., 2023). However, to the extent that subsidies become permanent mechanisms and eligibility criteria are not established, regressive behaviors arise, higher socioeconomic strata capture the benefit of the subsidy, and a fiscal distortion is sustained that limits the long-term redistributive viability of subsidies. In this sense, the distributive dimension has become the main indicator of the social efficiency of subsidies, beyond simple price relief, and is essential for the design of future fiscal reforms.

In Ecuador, fuel subsidies have become structural policies, particularly the universal LPG subsidy, which offers economic advantages concentrated in households with the highest consumption and equipment, resulting in regressive outcomes and a significant accumulated fiscal cost (Montenegro & Ramírez, 2024). Furthermore, its enduring nature as a general policy, while potentially compensatory, has ultimately led to a massive fuel subsidy regime lacking socioeconomic targeting and with leakage to non-domestic uses; this, in turn, maintains an intensive consumption dynamic without incentivizing technological transition.

In contrast, the Dignity Tariff is the only national state electricity subsidy that proposes a technical targeting mechanism aimed at reducing electricity consumption, minimizing leaks, concentrating benefits on vulnerable households, and alleviating energy poverty. This distinguishes it from LPG not only in its operational design but also in its distributive nature, since its progressivity is linked to conditional access and territorial alignment with poverty indicators (Novoa et al., 2023). The current debate is not about the existence of subsidies but about how they are distributed, which households receive their benefits, and what criteria underpin fiscal and social justice.

In this context, the study aims to examine the comparative dynamics of the regressive nature of the LPG subsidy and the progressive nature of the Dignity Tariff in Ecuador during the period 2007–2025. It also seeks to measure the distributional effects of both subsidies, the extent of leakage to non-vulnerable socioeconomic strata, and the potential of targeting as a criterion for generating fiscal and social sustainability of energy subsidies. The objective of the analysis is to provide evidence supporting a shift from universal tariffs

to more selective ones, compatible with the principle of distributive efficiency and designed to protect lower-income households.

The 2007–2025 timeframe is based on a historical and institutional criterion, not on the construction of a homogeneous annual statistical series. The year 2007 is established as the starting point because it corresponds to the implementation of the Dignity Tariff, allowing for an analysis of the differences between a consumption-based targeted electricity mechanism and the universal LPG subsidy from their inception. For its part, 2025 represents the most recent cutoff point for the review and allows for the incorporation of current studies on distributional impact, targeting, energy poverty, and fiscal sustainability.

Because the sources consulted present information for different years and sub-periods, the analysis is organized by milestones and blocks of evidence: the origin and institutional continuity of subsidies since 2007, the fiscal evidence available mainly for 2019–2022, and the distributional assessments and reform proposals published between 2021 and 2025. Consequently, the study does not aim to attribute annual continuity to indicators that were not published uniformly, but rather to examine the permanence and evolution of institutional designs based on the available evidence.

Theoretical Framework

Energy Subsidies in Ecuador

Nature of the Subsidy as a Redistributive Tool.

In the Ecuadorian context, energy subsidies have taken the form of a public policy that seeks to maintain artificially low prices to ensure access and guarantee social stability. Zambrano and Pionce (2023) support this assertion, arguing that subsidies do not generate a price higher than the market price; rather, it is political economies that make these assumptions to incentivize activity in strategic sectors or to help the most vulnerable groups. Through this logic, the subsidy is also a kind of redistributive and social protection instrument in the sense of compensating for structural inequalities and safeguarding the right to basic energy services (Shittu et al., 2024). However, its continuity has transformed a compensatory public policy into a structural public policy within public spending, which has complicated its reform due to the implications for the social burden it entails and citizen resistance to any attempt at modification.

Difference between generalized and targeted subsidies.

Recent literature emphasizes that the problem with the Ecuadorian system that should be highlighted is not the existence of subsidies, but rather their universalist nature. Peña et al. (2025) point out that direct subsidies, in which the State transfers resources to lower consumption costs, coexist in the country with cross-subsidies, in which one group of users pays lower rates and others pay higher rates within the system. However, the existence of subsidies ceases to be ephemeral and becomes permanent, which demonstrates that they have become generalized rather than targeted policies. Montenegro and Ramírez (2024) warn that the lack of targeting will increase the opportunity cost, since the government states that it will dedicate itself to studying new targeting mechanisms to mitigate the impact on the most vulnerable sectors and that it officially recognizes the importance of transitioning to selective schemes based on income and real consumption.

Social objective: access to basic energy.

The historical basis for energy subsidies has been to guarantee universal access to strategic services, particularly fuels, which are distributed throughout the territory, in order to maintain social cohesion and prevent exclusion (Miño, 2025). Zambrano and Pionce (2023) understand government subsidies or incentives as economic aid or support whose purpose is to promote certain economic and social policies, emphasizing the use of the State as the axis of social policy.

Distributive regressivity and progressivity

Regressivity: greater relative benefit for higher income brackets.

Several international studies agree that universal energy subsidies allow the majority of the tax advantage to accrue to higher-income households (Mokhtari & Ghoddusi, 2025; Wilson, 2024). The World Bank itself states that evidence suggests energy subsidies are regressive, as they benefit higher-income households, which consume more energy (Olivier et al. 2023). This depends not only on consumption levels but also on the fact that infrastructure and formal access to energy networks are more established in middle- and upper-class urban areas. When subsidies are provided through reductions in the final price and are granted without eligibility criteria, the market structure favors capture by those who are the primary consumers, which would explain why subsidies are difficult to use as an effective tool for protecting the poor (Mus et al., 2024; Serem et al., 2024).

Progressivity: Benefits Concentrated in Vulnerable Deciles.

Progressivity is a phenomenon that only arises when a subsidy is distributed through targeting mechanisms or cash compensation. Wilson's study (2024) demonstrates that, for universal development, fuel subsidies are regressive, structured in such a way that wealthy households capture three times the benefits of poor households. This proves that subsidizing a basic good does not inherently make it progressive, but rather depends on how it is allocated. Faced with such regressivity, the design of direct transfers and social intervention programs would ensure that the tax relief ultimately reaches the poor. Thus, progressivity is not intrinsic to the energy subsidy, but rather depends on its implementation: price-based subsidies equal structural regressivity; targeted subsidies equal potential progressivity (Moayed et al., 2021).

Distributive Impact as an Indicator of Social Efficiency.

Distributional evaluation has become the primary technique for determining the role of subsidies, even beyond temporary price relief, in political debate. According to the World Bank, any reform must begin with a diagnosis that determines the magnitude and distribution of subsidies among households. This measurement allows for determining the actual percentage of public spending that reaches poor households versus the highest income deciles. As the same report points out, this type of analysis has become almost indispensable since subsidies siphon off fiscal resources that could be allocated to more effective social programs for reducing inequality (Olivier et al., 2023). Therefore, social efficiency depends not only on the price paid to consumers but also on the capacity for effective redistribution, as well as on a comparison with alternative transfers that demonstrate a greater equalization potential than price subsidies (Bertín et al., 2024).

LPG Subsidy (2007–2025)

Universal design without socioeconomic targeting.

The LPG subsidy in Ecuador has operated under a universal scheme since the late 1970s, continuing as a fixed-price measure without distinction based on income level, geographic location, or vulnerability. Beltrán and Velasteguí (2021) state that the 15 kg cylinder has been subsidized since 2001 at a fixed price of USD 1.60, when its actual price is approximately USD 15, demonstrating a generality that benefits the entire consumer base without distributive filters.

This universal character has been consolidated over time as a permanent, rather than temporary, public policy, causing the subsidy to cease being a temporary protection measure and become a structural component of public spending. Peña et al. (2025) highlight that energy subsidies (including LPG) have ceased to function as targeted compensatory mechanisms and have become extensive and sustained policies that utilize significant fiscal resources without distributive eligibility criteria.

Capture and predominant consumption in high deciles.

Consumption patterns demonstrate that households in high income strata capture a greater proportion of the benefit associated with LPG and other corresponding energy subsidies. The study by Araujo et al. (2025) on Quito and Guayaquil empirically shows that high-income households (HT3) consume 2.34 times more than middle-income households; 5.34 times more than low-income households; and receive subsidies three times more than poor households. This finding suggests that universal design renders the LPG subsidy a regressive benefit, since energy consumption is correlated with greater access to infrastructure, number of appliances, and energy expenditure.

Sustained Fiscal Cost and Distortions in Use.

The LPG subsidy represents a structural and onerous fiscal expenditure, as documented by Peña et al. (2025), who show that between 2019 and 2021, the fuel subsidy resulted in an accumulated deficit of USD 2.594 billion, stemming from the difference between import costs (USD 9.563 billion) and marketing revenues (USD 6.968 billion).

Furthermore, maintaining LPG as a universally used product generates distortions in the economy. Beltrán and Velasteguí (2021) indicate that the LPG subsidy has been maintained despite not meeting the most basic criteria of temporality, targeting, and sustainability, which creates an incentive to divert the subsidy to non-domestic activities and its use for purposes other than those intended. On the other hand, the analysis by Araujo et al. (2025) corroborates that subsidized consumption plus frozen prices plus higher real costs do not incentivize savings or technological transition, thus perpetuating patterns of waste, informality, and extensive use of non-domestic LPG.

Dignity Tariff (2007–2025)

The Dignity Tariff was established by Executive Decree No. 451-A in July 2007 and stipulates that only residential users whose monthly consumption is

≤ 110 kWh in the Sierra region and ≤ 130 kWh in the Coastal, Amazonian, and Insular regions can access a preferential tariff of USD 0.04/kWh (Novoa et al., 2023). This targeting method is based exclusively on the technical criterion of a monthly electricity consumption measurement, which becomes a form of indirect and automatic selection without socioeconomic declaration.

However, Novoa et al. (2023) report that consumption is not a bidirectional indicator of poverty; that is, lower electricity consumption does not necessarily indicate a specific socioeconomic vulnerability, a point that highlights a methodological limitation regarding distributional accuracy. However, within the framework of Ecuadorian energy subsidies, the Dignity Tariff is the only scheme capable of introducing objective technical conditionality, unlike universal subsidies such as LPG.

Coverage targeted at vulnerable households.

The implementation of the Dignity Tariff shows territorial overlaps with multidimensional poverty indices, children with unmet basic needs, and lower levels of access to refrigeration and equipment (Obaco et al., 2024). The provinces with the highest poverty rates (Amazon and Northern Coast) coincide with the highest levels of eligibility for the tariff based on consumption. The study by Obaco et al. (2024) states that the electricity subsidy reaches poor households proportionally more than the LPG subsidy. This is because the criterion of electricity consumption is closely related to lower household equity, lower income, and less access to modern energy infrastructure. Targeted electricity subsidies reduce territorial gaps in energy poverty and are the most important redistributive mechanism among all energy subsidies.

Reducing Energy Poverty with Minimal Leakage.

The evidence presented by Novoa et al. (2023) suggests that targeting consumption does not eliminate all leakage, but it does achieve a significant reduction in subsidies to non-vulnerable households, as well as in the fiscal expenditure associated with the electricity scheme. This analysis highlights that the proposed socio-technical targeting alternative (consumption + land valuation + geographic stratum) would allow for this reduction, eliminating non-poor beneficiaries without affecting households in the first and second income quintiles, who should be protected by this policy to eradicate energy poverty.

Additionally, the analysis by Obaco et al. (2024) suggests that the Dignity Tariff does help reduce energy poverty, as it decreases the burden that electricity places

on the disposable income of poor households and also maintains very low levels of leakage compared to universal subsidies. In this sense, the Dignity Tariff stands out as Ecuador's only progressive energy subsidy, as it is the only proposal that presents technical conditionality and measurable redistributive effects: reduced electricity expenditure, reduced energy poverty, and fiscal transfers concentrated in vulnerable deciles, in direct contrast to LPG, which would only be reduced through universal subsidies, regressive conditions, and high fiscal costs.

Methodology

This study adopts a qualitative approach through a literature review research design. Its purpose is to analyze the dynamics of regressivity and progressivity of energy subsidies in Ecuador, specifically for the Liquefied Petroleum Gas subsidy and the Dignity Tariff, for the period 2007–2025. This option is appropriate because the analysis of energy subsidies, from a distributive perspective, analyzes theoretical frameworks, institutional designs and already documented empirical evidence, and not one in which primary data are generated (Maigua et al., 2024).

The research is based exclusively on secondary sources, consisting of peer-reviewed scientific articles, technical reports from international organizations, institutional documents from the Ecuadorian State, and specialized studies on energy subsidies and energy poverty (Shittu et al., 2024; Bertín et al., 2024). The use of these sources is consistent with methodological literature indicating that literature reviews allow for the synthesis of accumulated evidence and the evaluation of recurring distributional patterns in long-term public policies, such as energy subsidies.

The literature review comprised 26 documents published primarily between 2021 and 2025, including peer-reviewed scientific articles, technical reports, and institutional documents. Sources were selected based on their direct relationship to energy subsidies, regressivity, progressivity, targeting, fiscal cost, and energy poverty. Timeliness, methodological clarity, full-text availability, and the relevance of the results to Ecuador or comparable international contexts were also considered. Duplicate documents, opinion pieces, and publications lacking verifiable information on the analyzed dimensions were excluded.

For temporal coverage, an organization by sub-periods and institutional milestones was adopted. Each document was not required to provide information for all years between 2007 and 2025, as fiscal records,

distribution studies, and targeting evaluations have different coverage. Therefore, each result was interpreted only within the specific period reported by its source, avoiding extrapolating figures or trends to years without available information. Long-term comparisons were based on the continuity of the institutional designs of the GLP (Guaranteed Gas Program) and the Dignity Tariff, while quantitative data were used to characterize specific sub-periods.

Subsequently, an analytical-comparative analysis of the content of the selected sources was conducted, focusing on three dimensions: the institutional design of the subsidies, the distributional impact of the benefits among different socioeconomic classes, and the fiscal and social consequences of each mechanism. This comparative analysis format is widely used in studies on energy subsidies, as it allows for the comparison of universal schemes with targeted mechanisms by comparing documents without resorting to specific econometric estimations.

The assessment of the regressivity of the liquefied petroleum gas subsidy and the progressivity of the Dignity Tariff was based on documented evidence of energy consumption patterns, the distribution of benefits by income deciles, the type of leakage to non-vulnerable households, and its effects on energy poverty. This approach is consistent with the criteria proposed by the World Bank for the distributional analysis of energy subsidies, which emphasizes the need to study the individuals who effectively comprise the public that finances the subsidy-related policy (Olivier et al., 2023).

Since this study is not secondary empirical research, no econometric models or specific statistical techniques were applied (Kraus et al., 2022). Instead, an interpretive methodology was used that relies on the convergence of results from the dedicated literature, a methodology that has been used in recent studies related to energy subsidies and redistribution in developing economies (Harsono et al., 2025).

Results

Distribution of the Benefit of Energy Subsidies by Income Level

The results show that the benefit of energy subsidies in Ecuador is closely related to household energy consumption patterns. Empirical evidence demonstrates that the share of the subsidy benefit increases incrementally with income level, revealing considerable differences between quintiles (Gasparini et al., 2025; Samba et al., 2024).

Specifically, households in the highest quintiles accumulate a larger proportion of energy consumption and the implicit benefit generated by subsidies associated with the final price. Conversely, households in the lowest quintiles also have a smaller share, consistent with their more limited total energy consumption.

Table 1

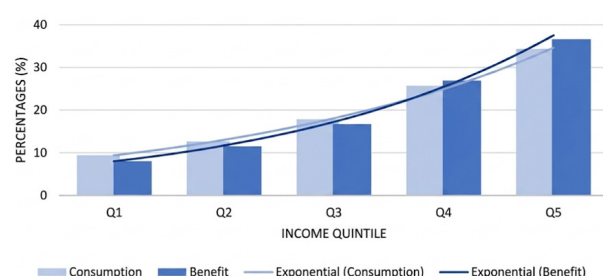
Distribution of the Benefit of Energy Subsidies by Quintile in Ecuador

Income Quintile	Share in Energy Consumption (%)	Share in Subsidy Benefit (%)
Quintile 1	9.5	8.1
Quintile 2	12.7	11.4
Quintile 3	17.9	16.8
Quintile 4	25.6	26.9
Quintile 5	34.3	36.8

Note. Data correspond to estimates based on household surveys and energy consumption records. The information was obtained from Araujo et al. (2025), Peña et al. (2025) and Maigua et al. (2024).

Figure 1

Distribution of energy consumption and subsidy benefits by income quintiles in Ecuador



Note. Authors own elaboration based on Araujo et al. (2025), Peña et al. (2025) and Maigua et al. (2024)

Fiscal Cost of Fossil Fuel Subsidies

An analysis of fossil fuel subsidies from a fiscal expenditure perspective demonstrates that they represent a significant and persistent fiscal burden. The results show that diesel systematically accounts for the largest share of spending, followed by LPG and, to a much lesser extent, gasoline.

Similarly, a significant year-on-year variation is observed in the total volume of subsidies, related to the notable volatility of international crude oil prices, the volume of imports, and the level of domestic consumption. However, aggregate spending remains high throughout the entire period analyzed.

Table 2

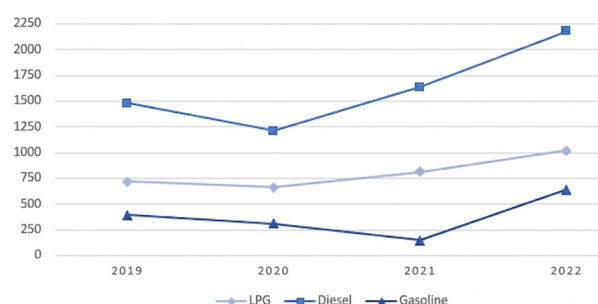
Fiscal Cost of Fuel Subsidies in Ecuador (USD millions)

Year	LPG	Diesel	Gasoline	Total
2019	720	1.480	394	2.594
2020	665	1.210	311	2.186
2021	812	1.635	147	2.594
2022	1.020	2.180	640	3.840

Note. Values reflect consolidated estimates of state spending intended to subsidize fossil fuel prices. Information was obtained from Peña et al. (2025), Sisalima (2024), Ministry of Economy and Finance (2025).

Figure 2

Evolution of the fiscal cost of fossil fuel subsidies in Ecuador (2019–2022)



Note: Prepared by the authors based on Peña et al. (2025), Sisalima (2024), and the Ministry of Economy and Finance (2025).

Electricity Subsidy “Dignity Tariff”

Regarding the electricity subsidy known as the Dignity Tariff, the results show a structure based on the allocation of monthly consumption thresholds that vary by region. This allows for the identification of the group of residential users who can benefit from a preferential tariff associated with a specific level of electricity consumption.

The data suggest that the majority of the beneficiary population is in the lowest income quintiles, although households in middle and upper quintiles also meet the consumption criteria. This distribution of beneficiary households reflects the application of eligibility criteria that are not directly related to socioeconomic variables.

Table 3

Indicators of the “Dignity Tariff” electricity subsidy in Ecuador

Indicator	Result
Subsidized Consumption Threshold	≤ 110 kWh (Highlands) / ≤ 130 kWh (Coast)
Beneficiaries In Quintiles 1 And 2 (%)	62.4
Beneficiaries In Quintiles 3 To 5 (%)	37.6
Estimated Potential Fiscal Savings (%)	28 – 35

Note. Indicators are obtained from administrative records of the electricity sector and focalization studies. The information was obtained from Novoa et al. (2023) and Araujo et al. (2025).

Alternative Monetary Compensation Schemes

Empirical evidence from recent studies shows measurable results attributable to the implementation of direct monetary schemes, replacing energy subsidies. The findings demonstrate observable effects on population coverage, benefit distribution, and the efficiency of public spending.

These types of schemes can channel public spending directly to recipient households, safeguarding income and reducing the allocation that is actually made, which is primarily focused on energy consumption levels.

Table 4

Observed Results of Monetary Transfer Schemes

Indicator	Result
Beneficiary Households (%)	60 – 70
Reduction of Gini Coefficient (%)	6 – 8
Impact on Energy Poverty	Decrease
Distortion of Energy Prices	Not Observable

Note. The results correspond to documented empirical evaluations from Moayed et al. (2021), Mus et al. (2024), and Shittu et al. (2024).

Discussion

The results confirm that the distributional effect of subsidies in Ecuador is not attributable to the subsidized good itself, but rather depends on how the benefit is distributed. This difference becomes evident when comparing the universal subsidy for Liquefied Petroleum Gas (LPG) versus the Dignity Tariff. While the former implies a price reduction for all consumers regardless of income or vulnerability, the latter involves eligibility

criteria based on household electricity consumption limits. In this sense, the data support the assertion that progressivity is not inherent in the subsidy, but rather a result of eligibility rules that direct the expenditure to the households that truly need it.

The observed distribution pattern indicates that the upper quintiles concentrate more of both energy consumption and the benefit received. The fifth quintile accounts for 34.3% of consumption and 36.8% of the subsidy, while the first quintile accounts for 9.5% and 8.1%, respectively. On the one hand, this pattern coincides with that noted by Olivier et al. (2023), in that price subsidies benefit those who consume the most; on the other hand, it coincides with that noted by Wilson (2024), who demonstrates that the capture is greater among wealthy households. In this sense, the LPG subsidy fulfills the social purpose for which it was designed, but its universal design results in limited redistributive capacity, reproducing inequalities associated with consumption itself.

The regressivity indicated by the LPG subsidy is explained by material differences among households. Higher-income strata have equipment, businesses, vehicles, and productive activities that significantly increase their fuel consumption. Araujo et al. (2025) demonstrate that the energy consumption of high-income households in Quito and Guayaquil is higher than that of lower-income strata. Therefore, a price decrease does not provide the same benefit in absolute terms: those who consume more receive a larger implicit transfer. The problem is not the protection provided by the State; the problem is the lack of filters to prevent the concentration of social resources in the hands of consumers with greater economic means.

Data from 2019 to 2022 show that fuel subsidies represent a significant and sensitive obligation in terms of international prices, imports, and domestic consumption. In 2022, reported spending amounted to US\$3.84 billion, of which US\$1.02 billion corresponded to LPG. This type of pressure limits resources for health, education, infrastructure, and other programs. Peña et al. (2025) and Sisalima (2024) agree that generalized subsidies generate fiscal rigidity, insofar as their elimination generates social resistance. Sustainability must be analyzed in terms of the opportunity cost of continuing with generalized transfers that lack distributional precision.

Table 5

Distributive and fiscal comparison of the energy subsidies analyzed

Dimension	LPG Subsidy	Dignity Rate	Interpretation
Access Criteria	Universal pricing	Consumption threshold	Eligibility improves social targeting
Distribution	Greater capture in high quintiles	Relative concentration in low quintiles	Focusing increases progressivity
Fiscal Cost	High and volatile	More controllable	Selective design facilitates sustainability
Leakage	High	Moderate	Both require better registries
Suitable Reform	Direct and gradual compensation	Complementary socio-economic focusing	Protection must be maintained with greater precision

Note: Own elaboration based on Araujo et al. (2025), Novoa et al. (2023), Peña et al. (2025), Sisiasama (2024), and Shittu et al. (2024).

In contrast, the Dignity Tariff aligns with equity objectives. The results indicate that 62.4% of beneficiaries are in the first and second income quintiles, compared to 37.6% in the third and fifth quintiles. This distribution allows the tariff to be considered progressive, since reduced electricity consumption is often associated with lower income, less equipment, and greater vulnerability. Novoa et al. (2023) argue that the thresholds of 110 kWh for the Sierra region and 130 kWh for the Coast, Amazon, and Insular regions function as an automatic selection mechanism. Obaco et al. (2024) link its coverage to territories with poverty and energy poverty.

However, the results do not allow for the identification of perfect electricity targeting. Low consumption does not always equate to poverty, because high-income households may register low demand, while vulnerable families could exceed the threshold due to need. This leads to inclusion and exclusion errors. The proposal by Novoa et al. (2023) Combining consumption, geographic location, land valuation, and socioeconomic information would allow for improved selection. The discussion should not be framed as an opposition between universality and targeting, but rather as a search for instruments that maintain coverage, avoid unfair exclusions, and reduce transfers to beneficiaries who do not need state support.

The findings support direct transfers as an alternative to a gradual reform. Moayed et al. (2021) explain that replacing regressive subsidies with redistributive mechanisms can improve equity when reliable records and accessible payment systems exist. Mus et al. (2024) add that social acceptance depends on understanding the

real cost of the subsidy and perceiving the compensation. An abrupt reform of the LPG program could affect income, increase cooking costs, and provoke resistance. The transition would require identifying beneficiaries, anticipating transfers, communicating transparently, assessing territorial differences, and establishing review mechanisms for excluded households.

International comparisons show that Ecuador faces similar problems to those of Argentina, Mexico, Indonesia, Iran, and Ghana. In these countries, universal subsidies are regressive, while reforms with direct compensation produce results when implemented gradually and with strong institutions. Harsono et al. (2025) indicate that the effects of poverty depend on the territory and the specialization in the administration of support. Finally, Shittu et al. (2024) indicate that the quality of institutions determines the relationship between subsidies and energy access. Copying subsidy models without considering informality, rurality, financial connectivity, and management capacities can reproduce targeting errors.

Conclusion

This research studied the structure and effects of energy subsidies in Ecuador, particularly fuel and electricity subsidies, analyzing their economic, distributional, and fiscal impact. The findings indicate that generalized subsidy systems, especially those based on lowering the final price, are markedly regressive, given that a significant portion of the benefit is captured by higher-income households and sectors with higher energy consumption. This evidence supports the assertion that universal subsidies (however well-intentioned) are not an efficient instrument for income redistribution or sustainable poverty reduction.

Similarly, the analysis identified that the fiscal burden of energy subsidies is significant, as it limits the availability of public resources allocated to sectors such as health, education, and social investment. In Ecuador, fuel and electricity subsidies have proven highly vulnerable to the volatility of international oil prices, leading to greater fiscal uncertainty and challenges to medium- and long-term budget planning. Within this context, the continued existence of non-targeted subsidies tends to exacerbate macroeconomic imbalances without contributing to redistributive benefits to the same extent as the subsidy itself.

On the other hand, the reviewed evidence indicates that subsidy schemes with targeted criteria, such as the Dignity Tariff in the electricity sector, perform relatively

better because the benefits are concentrated in the lowest income deciles and have measurable redistributive consequences. It is worth noting once again that, even in these cases, technical and institutional challenges remain, related to updating socioeconomic databases, accurately identifying beneficiaries, and reducing inclusion and exclusion errors. This implies that while targeting is necessary, it is not sufficient and must be accompanied by institutional strengthening to maximize its effectiveness.

The exclusive use of secondary sources and the qualitative approach of the study are some of its limitations, as they do not allow for a direct measurement of the distribution of policy benefits among households or the verification of causal relationships. Furthermore, differences in the methodology and timing of the reviewed studies prevent a homogeneous comparison of some results. Therefore, future research could include household surveys, updated administrative records, and econometric models capable of accurately estimating the distributional impact, fiscal cost, and social effects of energy subsidies in Ecuador.

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