



Paper Type: Original Article

Resource Curse under Sanctions: The Mediating Role of the Shadow Economy in Corruption, Institutional Erosion, and Sustainable Governance in Iran

Seyyedeh Negar Nourbakhsh¹, Mohammad Habibpour Fatideh^{2,*} 

¹ Department of Environmental Governance, University of Tehran, Tehran, Iran; n.nourbakhsh@ut.ac.ir.

² Department of Economics, School of Governance, University of Tehran, Tehran, Iran; m.habibpour@ut.ac.ir.

Citation:

Received: 28 December 2024

Revised: 03 March 2025

Accepted: 12 May 2025

Nourbakhsh, S. N., & Habibpour Fatideh, M. (2025). Resource curse under sanctions: The mediating role of the shadow economy in corruption, institutional erosion, and sustainable governance in Iran. *Innovations in Environmental Economics*, 1(3), 222-235.

Abstract


This study examines the resource curse under sanctions in the context of Iran as a resource-dependent economy characterized by oil rent volatility, institutional fragility, and expanding shadow economic activities. The paper argues that international sanctions reshape "effective oil rents" by affecting production capacity, export prices, and transaction costs, thereby increasing incentives for rent-seeking and informal economic arrangements. Within this framework, the shadow economy functions as a key transmission mechanism through which oil rent shocks contribute to corruption, weakened accountability, and institutional erosion. Building on the institutional resource curse and rentier state literature, the study develops a conceptual framework linking sanctions, oil rent shocks, the shadow economy, corruption, and governance deterioration. The analysis further highlights how opaque economic structures may weaken sustainable governance and long-term institutional resilience. Drawing on Iran-centered Evidence, the paper shows that oil rent shocks are associated with higher corruption, inflationary pressures, and declining institutional quality. The study proposes a "tax–citizen contract" as a policy framework for strengthening fiscal transparency, public accountability, and institutional sustainability. By reducing dependence on opaque rents and reinforcing the taxation–representation relationship, such a framework may help weaken the cycle of rent-seeking, shadow economic expansion, and institutional deterioration in sanctioned resource-dependent economies.

Keywords: Resource curse, Shadow economy, Oil rent shocks, Corruption, Sustainable governance, Iran sanctions.

1 | Introduction

Natural resource abundance has traditionally been viewed as an important engine of economic growth and development. Nevertheless, a substantial body of literature suggests that resource-rich economies frequently

 Corresponding Author: m.habibpour@ut.ac.ir

 <https://doi.org/10.48313/iee.v1i3.62>



Licensee System Analytics. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0>).

experience weak institutional performance, corruption, rent-seeking behavior, and governance failures, a phenomenon commonly referred to as the "resource curse" [1], [2]. More recent studies argue that natural resources are not inherently detrimental to economic development; rather, the quality of institutions and political incentives determines whether resource wealth becomes a blessing or a curse [3], [4]. Recent studies further connect the resource curse literature to sustainable development and to challenges in the energy transition. Qin et al. [5] argue that weak institutional structures may hinder sustainable development and energy transition processes in resource-dependent economies, thereby reinforcing long-term governance vulnerabilities. In resource-dependent economies, oil rents may fundamentally reshape the relationship between governments and citizens by reducing the state's reliance on taxation and weakening mechanisms of public accountability. According to the rentier state literature, governments that depend heavily on natural resource revenues instead of taxation generally face lower social pressure for transparency, political representation, and institutional responsiveness [6]. As a result, oil rent shocks may intensify corruption, political patronage, and institutional deterioration, particularly in countries characterized by fragile governance structures and weak institutional capacity.

Iran provides a particularly important case for examining these dynamics. As one of the world's major hydrocarbon economies, Iran has historically relied heavily on oil revenues while simultaneously experiencing repeated oil price shocks and extensive international sanctions. Over recent decades, sanctions have not only reduced official oil revenues but have also transformed the mechanisms through which oil rents are generated, distributed, and managed. Farzanegan [7] argues that sanctions may affect oil rents through multiple channels, including reduced production capacity, discounted export prices, and increased extraction and transaction costs. Therefore, in the context of sanctions, oil rent shocks should not be interpreted merely as fluctuations in global oil prices, but rather as changes in "effective oil rents" within a constrained political and institutional environment. At the same time, sanctions may strengthen incentives for informal and opaque economic activities. Restrictions on international trade, financial transactions, insurance systems, and official payment mechanisms often shift economic interactions toward less transparent channels and expand the shadow economy. In such conditions, the shadow economy becomes more than a conventional informal sector; it evolves into a mechanism for redistributing rents through opaque networks, privileged access, and rent-seeking arrangements. This process may intensify corruption and accelerate institutional erosion by weakening transparency, accountability, and regulatory enforcement.

Existing Evidence on Iran indicates that positive oil rent shocks are associated with higher levels of corruption and institutional deterioration. Farzanegan and Zamani [8] demonstrate that oil rent shocks in Iran significantly increase corruption through channels such as inflation, military expenditures, and the erosion of democratic institutions. However, despite the growing literature on the resource curse, sanctions, and institutional quality, limited attention has been paid to the mediating role of the shadow economy in transmitting oil rent shocks into corruption and institutional degradation under sanctions.

This paper seeks to address this gap by developing a conceptual and empirical framework linking sanctions, oil rent shocks, the shadow economy, corruption, and institutional erosion in Iran. The study argues that sanctions simultaneously reshape the structure of effective oil rents and expand shadow economic activities, thereby reinforcing the transmission of rent shocks into corruption and governance deterioration. Within this framework, the shadow economy functions both as a mediating mechanism and as an amplifier of institutional decay.

The contribution of this paper is threefold. 1) It reconceptualizes oil rent shocks under sanctions by emphasizing the notion of effective oil rents rather than focusing solely on global oil prices. 2) It introduces the shadow economy as a central transmission channel connecting sanctions and oil rent shocks to corruption and institutional erosion, and 3) the paper develops a policy-oriented framework based on a "tax-citizen contract" aimed at strengthening fiscal transparency, public accountability, and sustainable governance in resource-dependent economies under sanctions. Accordingly, this study contributes not only to the political

economy of the resource curse but also to the broader literature on sustainable governance, institutional resilience, and shadow economic activities under external economic constraints.

The remainder of the paper is organized as follows. Section 2 reviews the literature on the resource curse, sanctions, the shadow economy, and institutional quality. Section 3 presents the data and variables employed in the analysis. Section 4 explains the empirical methodology. Section 5 discusses the empirical findings, while Section 6 reports robustness checks. Section 7 presents the policy implications of the findings, particularly regarding the tax–citizen contract framework, and finally, Section 8 concludes the paper.

2 | Literature Review and Theoretical Background

2.1 | Resource Curse: From Simple Correlations to Institutional Mechanisms

The classical literature on the resource curse initially emerged from empirical Evidence showing a negative relationship between dependence on primary commodity exports and economic growth. However, more recent studies suggest that natural resources themselves are not inherently deterministic; rather, political and institutional mechanisms governing rent allocation shape the trajectories of growth, corruption, and governance quality. In addition, recent studies emphasize the close relationship between economic growth patterns, energy consumption, financial development, and environmental quality. Fakher [9] argues that institutional and economic structures significantly affect environmental sustainability outcomes through multiple environmental indicators, highlighting the importance of governance quality in resource-dependent economies. Nath [10] similarly revisits the resource curse debate and emphasizes that institutional quality remains the primary determinant of whether natural resource abundance contributes to sustainable development or institutional deterioration. In a comprehensive review, van der Ploeg [2] argues that the explanation of the resource curse extends beyond the conventional "Dutch disease" framework and is more closely associated with corruption, weakened accountability, favoritism, political patronage, and rent distribution mechanisms, particularly in contexts characterized by weak state capacity and limited institutional accountability.

2.2 | Conditional Institutional Approaches: "Producer-Friendly" Versus "Grabber-Friendly" Institutions

One of the most relevant theoretical frameworks for this study is the model developed by Mehlum, Moene, and Torvik [3], which examines the allocation of entrepreneurs between productive activities and rent-seeking ("grabbing") activities. The central argument of this framework is that increases in resource rents may encourage economic actors to shift away from productive activities toward unproductive rent-seeking behavior. Due to positive externalities associated with production, a decline in productive entrepreneurship reduces the opportunity cost of grabbing activities, allowing the displacement effect to dominate the income effect and ultimately undermine economic growth.

A key policy implication of this framework is that institutional quality, represented by institutional incentives and governance structures, determines whether an economy remains trapped in a "grabber-friendly" equilibrium or transitions toward a more productive equilibrium. Even within rent-seeking environments, stronger producer-friendly institutions may improve overall income and economic performance. Using causal machine learning approaches, Hodler et al. [11] provide further Evidence that stronger institutional quality can substantially mitigate the negative governance consequences of resource dependence, reinforcing the central role of institutions in shaping resource curse outcomes. Moreover, Mehlum et al. [3] argue that the poor performance of oil-dependent economies such as Nigeria, Venezuela, and Mexico following oil booms is primarily linked to institutional failures that encourage grabbing behavior and intensify political corruption.

This framework is particularly relevant for understanding Iran under sanctions. In the Iranian context, access to rents and the risks associated with grabbing behavior are heavily shaped by opaque networks, licensing systems, preferential access, exchange-rate rents, trade privileges, and sanction-circumvention mechanisms.

Therefore, the Mehlum–Moene–Torvik framework provides an appropriate theoretical basis for conceptualizing the role of the shadow economy in transmitting oil rent shocks into corruption and institutional erosion [3].

2.3 | Political Foundations of the Resource Curse: Patronage, Public Employment, and Political Survival

Another influential theoretical framework is provided by Robinson, Torvik, and Verdier [4], who emphasize the political foundations of the resource curse. They argue that many traditional resource curse models insufficiently account for the role of political actors, although politicians often serve as central strategic agents in developing economies. Within this framework, resource rents provide governments with opportunities not only for consumption and public spending but also for patronage distribution aimed at maintaining political power. One of the primary instruments of patronage is public sector employment, which is viewed as more credible and politically sustainable than temporary monetary transfers. Robinson et al. [4] identify four major implications of resource booms. 1) political actors may engage in excessive extraction of natural resources, 2) permanent resource booms may unexpectedly improve extraction efficiency, 3) resource booms may distort resource allocation in non-resource sectors because they encourage inefficient patronage and politically motivated employment expansion, and 4) the overall impact of resource booms depends heavily on institutional structures that promote accountability and state capacity. According to this perspective, the adverse effects of resource wealth arise not necessarily from extraction itself, but from how resource rents are distributed and politically utilized.

2.4 | An Important Measurement Debate: Resource Abundance versus Resource Dependence

A significant debate within the resource curse literature concerns the distinction between resource abundance and resource dependence. Many empirical studies measure resource dependences using indicators such as the share of natural resource exports in GDP, despite the possibility that such measures are endogenous and potentially misleading. Brunnschweiler and Bulte [12] demonstrate that when resource dependence is instrumented appropriately, empirical Evidence supporting the resource curse weakens considerably, and mineral abundance may even exert positive effects on economic performance. They emphasize the importance of distinguishing between resource abundance (natural wealth stocks), resource rents (income flows), and resource dependence (economic reliance on resource exports). The authors further argue that the core mechanism underlying the resource curse involves political control over rents through repression, patronage, and discretionary allocation. In contrast, many empirical studies incorrectly focus on export dependence rather than on the distribution of rents. This distinction is particularly important for Iran under sanctions. Official export dependence may artificially decline due to sanctions, discount pricing, barter arrangements, and sanction-circumvention mechanisms. At the same time, resource rents and, more importantly, political control over rent allocation through shadow economic networks may remain substantial or even increase. Consequently, the conceptual framework of this study explicitly distinguishes among resource abundance, resource rents, and resource dependence.

2.5 | Conceptual Framework: Sanctions, Shadow Economy, and Institutional Erosion

By integrating the theoretical perspectives discussed above, this study develops a conceptual framework linking sanctions, oil rent shocks, the shadow economy, corruption, and institutional erosion. The framework consists of four interconnected elements:

- I. Oil rent shocks (positive or negative): they may arise from changes in global oil prices, production capacity, transaction costs, or sanctions-related constraints.
- II. Institutional and political conditions: institutional structures may be either producer-friendly or grabber-friendly, shaping whether rents are directed toward productive investment or rent-seeking activities.
- III. The shadow economy as a key mediating mechanism: under sanctions, the costs of operating through formal channels increase substantially, making informal, opaque networks more valuable. Consequently, sanctions intensify incentives for grabbing behavior and rent-seeking activities, consistent with the displacement mechanism proposed by Mehlum et al. [3].
- IV. Governance and institutional outcomes: these dynamics may lead to increased rent-seeking behavior and weakened productive activity; expansion of patronage networks and inefficient public employment; higher corruption levels; institutional erosion; and reduced transparency and public accountability. In addition, recent sustainability-oriented studies suggest that these institutional distortions may weaken sustainable governance and the effectiveness of environmental policy by reducing regulatory transparency and undermining long-term institutional sustainability. In a related context, Ajide et al. [12] demonstrate that expanding shadow economic activities significantly undermines sustainable development outcomes by weakening governance quality, regulatory effectiveness, and institutional capacity.

2.6 | The Policy Dimension: The Tax–Citizen Contract

The literature on rentier states suggests that when governments rely primarily on resource rents rather than taxation, incentives for accountability and institutional responsiveness decline. Van der Ploeg [2] argues that rent dependence may reduce pressures for modernization, transparency, and public accountability. Accordingly, this study proposes the concept of a "tax–citizen contract" as a central policy framework for mitigating the resource curse under sanctions. The core idea is to redesign the fiscal and political relationship between the state and society through: strengthening transparent taxation systems, improving fiscal accountability, reducing rent-based exemptions and privileges, and transforming taxation into a mechanism for enhancing public oversight and institutional accountability. From this perspective, strengthening taxation and transparency may help weaken the capacity of shadow economic networks to generate secondary rents, corruption, and institutional erosion while simultaneously supporting sustainable governance and long-term institutional resilience.

3 | Oil Rent Shocks Under Sanctions, Shadow Economy, and Institutional Erosion

3.1 | Core Argument and Political Economy Logic

This study is built upon a central proposition: in a rentier economy operating under sanctions, oil rent shocks, whether positive or negative, primarily pass through opaque and weakly accountable channels, thereby increasing the likelihood of corruption and institutional erosion. Theoretically, this argument draws on both the rentier state and resource curse literatures. However, the novelty of this study lies in emphasizing the shadow economy as both a transmission mechanism and an amplifier of oil rent shocks under sanctions. This perspective is also consistent with studies that emphasize the relationship among environmental sustainability, economic openness, and long-run growth dynamics. Fakher [13] highlights that sustainable development outcomes are closely linked to the institutional and economic structures that shape investment, governance quality, and the economic policy environment. In the classical rentier state literature, oil rents weaken demands for accountability through the "rentier effect". Ross [6] clearly formulates this mechanism by arguing that governments benefiting from oil revenues tend to rely less on taxation, thereby reducing societal demands for representation and accountability (the taxation effect). He further explains that the rentier effect also includes spending and group formation effects, linking state dependence on oil revenues to broader political regime dynamics. Ross [6] additionally introduces the "repression effect", whereby resource wealth enables governments to increase internal security expenditures and suppress democratic demands. This framework is

particularly important for understanding Iran under sanctions because sanctions reshape the institutional incentives for rent allocation and push economic activity toward opaque networks and shadow economic arrangements, thereby increasing transaction costs and opportunities for corruption and rent-seeking.

3.2 | Defining Oil Rent Shocks under Sanctions: From Global Oil Prices to "Effective Rents."

In this study, oil rent shocks are not reduced merely to fluctuations in global oil prices. Instead, the analysis focuses on the concept of "effective rents". Farzanegan [7] defines oil and gas rents as the difference between the value of production and extraction costs:

$$\text{Rent} = (\text{Production Volume}) \times (\text{International Price} - \text{Average Unit Production Cost}). \quad (1)$$

A key contribution of Farzanegan [7] is the argument that international sanctions may affect oil rents through several channels: Reduced production capacity due to restrictions on foreign investment, Lower oil export prices resulting from discounting mechanisms, and increased extraction and transaction costs. Therefore, oil rent shocks under sanctions should be understood as changes in "effective allocable rents," shaped by both global market conditions and sanction-induced constraints. Farzanegan [7] further notes that sanctions targeting Iran's energy sector may generate significant negative shocks to oil and gas rents, making asymmetric analysis of positive and negative rent shocks theoretically and empirically relevant.

3.3 | Shadow Economy as a Transmission and Amplification Mechanism

In this study, the shadow economy serves as both a mediating variable and an amplification mechanism. Sanctions restrict formal channels for oil sales, financial transfers, insurance, transportation networks, and imports, thereby shifting economic activity toward less transparent environments. This shift structurally increases information asymmetries between governments, economic agents, and society, creating opportunities for licensing rents, monopolistic privileges, preferential access, and reduced public oversight. Empirical Evidence from Iran supports this argument. Farzanegan and Zamani [8] show that positive oil rent shocks significantly increase corruption and identify inflation, military expenditures, and democratic institutional erosion as major transmission channels. From the perspective of this study, the shadow economy intensifies these channels by: exacerbating inflationary pressures through exchange-rate distortions and dual markets, increasing opaque security and military expenditures, and weakening accountable institutions by distancing state financing from transparent tax systems.

3.4 | Causal Pathways: From Oil Rent Shocks to Corruption and Institutional Erosion

For analytical clarity, the conceptual model is organized into three interconnected blocks: block A refers to oil and gas rent shocks under sanctions. Oil rent shocks are defined according to changes in production volumes, export prices, and production costs under sanctions. Block B refers to the shadow economy and opaque governance mechanisms. The shadow economy refers to institutional arrangements in which resource allocation, contracts, licenses, and rent-related transactions occur outside transparent and accountable governance structures. Block C refers to Corruption and Institutional Erosion. This block operates through two major transmission channels: 1) the security and military channel. Farzanegan and Zamani [8] demonstrate that positive oil rent shocks significantly increase military expenditures in the years following the shock. They further argue that the military sector may foster corruption due to weak transparency and limited oversight. This finding is consistent with Ross's [6] repression effect, which links resource wealth to increased coercive capacity and reduced accountability, and 2) Inflation and Institutional Erosion Channel: Farzanegan and Zamani [8] also identify inflation and democratic institutional erosion as major mechanisms linking oil rent shocks to corruption. Within the framework of this study, the shadow economy intensifies these

dynamics through exchange-rate distortions, dual pricing systems, weakened regulatory enforcement, and reduced institutional accountability.

3.5 | Research Hypotheses and Testable Predictions

Based on the above framework, the hypotheses are defined in a way that makes them empirically testable and directly consistent with the issue of "sanctions–shadow economy–corruption–institutions".

Hypothesis 1 (direct effect). Positive oil rent shocks in Iran lead to increased corruption. This expectation is consistent with the findings of Farzanegan and Zamani [8] regarding the positive and significant response of corruption to positive oil rent shocks.

Hypothesis 2 (mediating role of the shadow economy). Part of the effect of oil rent shocks on corruption is transmitted through the shadow economy. In other words, oil rent shocks, by increasing the weight and function of less transparent channels, create more favorable conditions for transforming rents into corruption.

Hypothesis 3 (moderating role of sanctions). The intensity of sanctions strengthens the effect of oil rent shocks on the shadow economy and, consequently, on corruption, because sanctions restrict formal channels and affect the components of rent, including production volume, selling price, and production cost.

Hypothesis 4 (military/security channel). Positive oil rent shocks are associated with increased military/security expenditures, and this increase constitutes one of the channels through which corruption is intensified and accountability is weakened. Empirical Evidence from the Iranian case reports a significant increase in military expenditures following oil shocks.

Hypothesis 5 (inflation and institutional erosion channel). Positive oil rent shocks increase corruption through inflation and the erosion of democratic institutions. These channels are identified as key mechanisms in the Iranian case study.

3.6 | Policy Implication of the Framework: The "Tax–Citizen Contract" as a Strategy for Mitigating the Curse

If the "taxation effect" in the rentier-state literature refers to the reduction of citizens' demands for accountability through lower taxation, then a reform strategy consistent with this framework is to reconstruct the tax–representation link. In other words, instead of relying on opaque rents, the state would be compelled to strengthen tax bases and become more accountable to citizens to secure more sustainable, transparent financing.

In this regard, one policy pathway discussed in the literature regarding Iran is the combination of "direct rent distribution" and "direct taxation". Such a mechanism can stimulate citizens' participation in policy debates and make the state more responsible and accountable for its expenditures. From the perspective of the present study, this idea is translated into institutional terms as a "tax–citizen contract": a contract in which tax payment, as an instrument of public demand-making, and transparency in the allocation of public resources, as a condition of accountability, are locked together to reduce the capacity of the shadow economy to transform rent shocks into corruption.

4 | The Shadow Economy as a Transmission Channel from Rent Shocks to Corruption and Institutional Erosion: An Analytical Framework

If the previous section showed that sanctions shift rent shocks through the channels of volume, price, and cost, this section argues that the shadow economy is the "transmission environment" that converts these shocks into corruption and, in turn, into institutional erosion. In fact, by changing the structure of effective

rents, reducing export volume, imposing price discounts, and increasing extraction and transaction costs, sanctions push rents from formal to informal and opaque channels, while simultaneously increasing the "reward for circumvention".

At the conceptual level, this is consistent with the meaning emphasized in the measurement of "net rent". Rent is the difference between the value of production and intermediate costs, and sanctions can alter all three components: production/sales volume, selling price, and production and extraction costs. This displacement of rent increases demand for opaque intermediary networks and transforms the shadow economy from a "survival response" into a "platform for rent allocation".

On the other hand, Iran-centered Evidence shows that positive oil rent shocks in Iran are significantly associated with increased corruption, and that channels such as inflation, increased military expenditures, and the erosion of democratic institutions play a role in this relationship. This point is crucial to the discussion of the shadow economy because it grows precisely in areas where inflation, multiple exchange-rate systems, and trade and financial restrictions distort relative prices and make formal monitoring more costly.

Moreover, historical co-movement Evidence shows that during the 1970s, particularly between 1973 and 1977, the oil price shock coincided with increased corruption and a reversal in institutional quality, measured by the liberal democracy index. In other words, the same period in which the rent increase was also associated with intensified corruption and weakened institutional quality. Therefore, the precise question at this stage is: How does the shadow economy amplify the "effect of rent shocks" and transform it into a persistent corruption–institutional erosion pathway?

4.1 | Operational Definition of the Shadow Economy under Sanctions

In the literature, the shadow economy is usually defined as activities that are legally permissible but hidden from the state to evade taxes or regulatory requirements, or as legally prohibited activities such as smuggling, banned transactions, money laundering, and similar activities. However, under sanctions, this classical distinction is insufficient, as some activities may be considered legal or even necessary from a domestic perspective but, due to external restrictions, are forced to rely on opaque mechanisms.

Therefore, for Iran under sanctions, the operational definition of the shadow economy can be based on three components: 1) the shadow of foreign exchange and external transactions: This includes any mechanism of foreign exchange allocation, settlement, transportation, insurance, and financing that relies on intermediary networks and opaque contracts instead of formal banking, customs, and contractual chains. The economic logic of this component can be understood from the fact that sanctions directly affect oil rents through the channels of volume, price, and cost, thereby increasing incentives to engineer sales and settlement routes, 2) the shadow of the budget and public allocation: This refers to any transfer of rent resources, or quasi-rents, to expenditures, projects, subsidies, and contracts in forms that weaken traceability, competitiveness, and public auditing. The importance of this component is highlighted by the finding that, in Iran, positive rent shocks can increase corruption through channels such as higher military expenditures and the erosion of democratic institutions, and 3) the shadow of governance and implementation: This refers to the point at which regulation enforcement and the allocation of licenses and exemptions, due to high executive discretion and information asymmetry, turn into spaces of bargaining and informal payments. The link between this component and the resource curse is rooted in an important institutional proposition: wherever the state relies less on taxation, pressure for accountability and transparency decreases, and the risk of corruption detection declines. Sanctions intensify this situation by adding a layer of security and confidentiality. This latter statement is an analytical inference from the logic of sanctions, not a direct quotation from a source.

With this definition, the shadow economy in Iran under sanctions is not merely an informal sector. Rather, it is an architecture of rent allocation under constraint. This architecture may expand even during periods of rising rents, because rent booms inject more resources into environments with weaker transparency and competition standards.

4.2 | A Cyclical Conceptual Model

To link these components, a self-reinforcing causal cycle is proposed comprising four loops.

I. Loop 1: sanctions (expansion of the shadow economy)

The price–risk–information channel: sanctions raise the price of transparency by changing the parameters of effective rent, including reduced official revenues, higher transaction costs, and increased risk. As formal sales and settlement mechanisms become more difficult and costly, intermediary networks add value. From the perspective of rent measurement, sanctions may reduce selling prices through discounts and increase production, extraction, and investment costs. This displacement shifts activity from traceable channels to low-visibility channels and expands the shadow of foreign exchange and external transactions.

II. Loop 2: shadow economy (corruption): secondary rents and institutional silence

The shadow economy structurally produces "secondary rents", including license rents, access rents, exemption rents, information rents, and circumvention rents. These secondary rents are linked to corruption because their allocation is neither competitive nor subject to effective monitoring. In Iran, dynamic Evidence shows that positive oil rent shocks coincide with increased corruption, and this effect may persist for several years. The shadow economy amplifies this process. Rent booms create more opportunities for opaque allocation and feed shadow networks. Within the same framework, Iran-centered findings emphasize that the effect of rent on corruption also operates through channels such as inflation and institutional erosion. Inflation and price instability make monitoring and auditing more ambiguous and reduce the cost of operating in the shadow economy.

III. Loop 3: corruption (institutional erosion): weakening state capacity and the rules of the game:

When corruption moves from an isolated phenomenon to a systemic one, institutions erode in three dimensions: 1) executive capacity shows that Law enforcement becomes selective, and the cost of impartial enforcement increases, 2) legitimacy and trust denote Citizens perceive the state not as a provider of public goods, but as a distributor of rents, and 3) quality of political rules indicates Political competition and accountability decline. In Iran's historical experience, during the oil shock of the 1970s, corruption increased while institutional quality, measured by liberal democracy, reversed after 1973. In addition, the summary of the related research identifies the "deterioration of democratic institutions" as one of the mechanisms through which rents affect corruption. It is precisely at this point that the shadow economy connects to "institutional politics": the weaker the institutions become, the lower the cost of shadow activity and the higher the return to corruption.

IV. Loop 4: institutional erosion (expansion of the shadow economy): a self-reinforcing feedback

With institutional erosion, the shadow economy not only persists but also becomes a stable condition because effective regulation is replaced by bargaining-based regulation, effective taxation becomes more difficult, and citizens and firms rationally perceive that hiding part of their activities is beneficial. Assidi et al. [15] further show that governance quality significantly conditions the relationship between the shadow economy and sustainable development outcomes. Their findings suggest that weak governance structures intensify the long-run adverse effects of shadow economic activities on institutional sustainability. In other words, the cycle becomes complete: sanctions expand the shadow economy; the shadow economy intensifies corruption; corruption erodes institutions; and eroded institutions, in turn, further reinforce the shadow economy. An important supplementary point is that the rent, the state's incentive structure, also shapes institutional relationships. A key proposition is that states without natural resources are compelled to tax, thereby increasing pressure for accountability and transparency. By contrast, resource-rich states can finance expenditures through rents and therefore face less pressure to tax and reform formal institutions. The shadow economy in Iran under sanctions doubles this mechanism: on the one hand, oil rents keep dependence on taxation low; on the other hand, sanctions weaken tax collection and monitoring capacity, pushing parts of the economy into the shadows.

4.3 | Iran-Centered Evidence on the Co-Movement of Oil, Corruption, and Institutions: Supporting the Shadow Economy Argument

To empirically support this framework, three Iran-centered observations drawn from the sources used in the article are highlighted as Evidence of co-movement:

- I. Positive corruption response to positive oil rent shocks: a study using long-term data for Iran shows that various corruption indicators respond positively and significantly to positive oil rent shocks, and that this effect may persist for several years. This finding is consistent with the logic of increased allocable resources. However, for this article, the more important point is that the shadow economy can explain why this effect persists: part of the rent shock becomes embedded in opaque channels and is reproduced as secondary rents.
- II. Mediating mechanisms (inflation, military expenditures, and erosion of democratic institutions): the conclusion of the same study introduces channels such as inflation, increased military expenditures, and the erosion of democratic institutions as pathways through which rents affect corruption. Within the shadow economy framework, these three channels naturally align with opacity: inflation and relative price instability make tracking and auditing more difficult; security and military priorities can justify confidentiality; and the erosion of democratic institutions reduces accountability capacity. All three create favorable conditions for the expansion of the shadow economy. This interpretation is a theoretical extension based on the reported channels.
- III. Historical Evidence from the 1970s (oil shock, corruption surge, and decline in institutional quality): It is reported that during 1974-1977, coinciding with the oil price shock, corruption in Iran increased sharply, while institutional quality, measured by liberal democracy, declined after 1973.

This subsection concludes that, according to these sources, a clear message emerges for Iran: oil rent shocks coincide with increased corruption and weakened institutional quality, and channels such as inflation, security/military expenditure, and institutional erosion operate within this relationship. Moreover, the interaction between economic growth dynamics and environmental degradation has been increasingly emphasized in the sustainability literature. Fakher [14] shows that economic growth patterns may intensify environmental pressures under weak institutional and governance conditions, reinforcing the importance of sustainable governance frameworks in resource-dependent economies. The innovation of this stage of the article is to conceptualize the shadow economy as the "informal institutional infrastructure" of these channels, that is, the space into which sanctions push rent shocks and where opacity makes corruption persistent and institutionalized.

5 | Discussion

5.1 | Reconstructing the Tax-Representation Link against the Rentier Logic

The previous sections showed that, in Iran under sanctions, oil rent shocks can be transmitted through the shadow economy into corruption and institutional erosion. Opposite this cycle stands the idea of a "tax-citizen contract": a set of institutional arrangements through which state financing is based on transparent, claimable taxation. As a result, citizens, by paying from their own income, gain stronger incentives and greater capacity to demand accountability, transparency, and efficiency. This logic is directly consistent with the "taxation effect" in the rentier-state literature. If governments use resource rents instead of taxing citizens, pressure for representation and accountability declines. Therefore, rebuilding the role of taxation in state financing, even gradually, can act as an institutional lever that limits corruption-generating pathways and strengthens accountability capacity. This policy framework is not merely a general recommendation to "raise taxes". Rather, in the context of the present article, it is understood as an anti-shadow-economy policy. As shown in Section 4, the shadow economy is not simply an informal sector; it is an "architecture of rent allocation under constraint". If this architecture is to be weakened, two changes must occur simultaneously: allocable rents in opaque channels must be reduced or made transparent, and the incentives and capacity for monitoring by both the state and society must increase. Transparent taxation plays this dual role precisely.

On the one hand, by creating formal transactional traces and strengthening auditing, it raises the cost of shadow activity. On the other hand, linking state financing to citizens' financial participation increases the capacity for public demand-making.

5.2 | From "Rent Distribution" to "Contract."

One of the classical questions in the political economy of resources is whether rents can be distributed in ways that increase accountability rather than through opaque spending. In this regard, the literature related to Iran argues that if the state distributes resources directly to the people and then collects direct taxes in return, this mechanism can bring citizens into policy debates and make the state more accountable. In the present article, this idea is translated into institutional terms as the "tax–citizen contract". It means arrangements in which citizens are both transparent beneficiaries of public resources and traceable taxpayers. Precisely for this reason, the demand for transparency and corruption control becomes a broad private interest, not merely an ethical or political demand. The important point is that, under sanctions, governments usually face two tendencies: 1) concealment for sanction circumvention and protection of networks, and 2) the use of a "security" environment to reduce accountability. It is why the tax–citizen contract must be well-designed institutionally. If it merely increases taxation without strengthening transparency and public reporting mechanisms, it may lead to distrust or further expansion of the shadow economy. Therefore, the condition for the success of this contract is the "locking of taxation to transparency". Effective taxation must move simultaneously with greater public access to budgetary information, contracts, and expenditure tracking, so that citizens can observe and demand the relationship between "payment" and "service".

5.3 | Designing an Implementation Package under Sanctions

Drawing on the theoretical logic above and considering the constraints of a sanctioned economy, the policy package outlined in this article can be structured around four pillars. These pillars are defined not only to increase tax revenues but also to reduce the shadow economy's capacity to convert rents into corruption.

Pillar 1. Tax base reforms focused on transparency and reducing rent-based exemptions: in a rentier economy, extensive exemptions, preferential rates, and discriminatory tax arrangements can themselves become license rents and reinforce the shadow economy. Therefore, tax base reform should be based on three principles: gradual elimination of non-targeted and discriminatory exemptions that turn into license rents; expansion of comprehensive income/wealth taxation and traceable taxes to create an information trail; and design of rates and incentives that make formal economic activity advantageous. The logic of this pillar is consistent with the taxation effect: as the state becomes more dependent on taxation, pressure for accountability increases. However, in sanctioned Iran, it must be noted that if tax reforms merely increase pressure on the formal sector, they may expand the shadow economy. Therefore, reforms must reduce incentives for concealment, reduce discrimination, and broaden the tax base.

Pillar 2. Tracking quasi-rent flows and closing shadow economy loops.

Section 4 showed that the shadow economy feeds on secondary rents, including licenses, access, and information. Therefore, an important part of the tax–citizen contract must be dedicated to tracking quasi-rent flows. This pillar includes the following institutional measures: standardizing and publicizing data on public contracts and procurement, especially in sectors with high corruption risk; integrating transaction databases, including banking, customs, and tax data, in line with anti-money-laundering standards; increasing transparency in license allocation mechanisms and transforming licenses from "privileges" into rule-based processes.

This pillar directly targets the shadow-economy cycle, because in a sanctioned economy, opaque intermediary networks can generate "circumvention rents" that are converted into corruption. The greater the traceability and auditability, the lower the return to corruption, and the weaker the cycle described in Section 4 becomes.

Pillar 3: transparent redistribution and conditioning public expenditure on citizen oversight.

One of the main reasons for the persistence of the rent–corruption cycle is that citizens do not see a direct relationship between public resources and their own welfare, or they observe it only through opaque channels. In this regard, the idea of "direct distribution" combined with "direct taxation" can bring citizens into policy debates and make the state more accountable. It does not simply mean recommending cash transfers; rather, it means creating a trace of citizen ownership and benefit so that the demand for transparency and anti-corruption becomes rational and interest-based.

Within the tax–citizen contract, part of the resources, for example, from rents or savings generated by reducing license-based rents, can be returned to households or society through transparent mechanisms. At the same time, direct taxation, even at low initial rates, can function as an "institutional lock of demand-making". Theoretically, this transforms the taxation effect from a passive mechanism, lower taxation equals lower demand for accountability, into an active mechanism, tax payment equals stronger demand for accountability.

Pillar 4. Reducing incentives for security-based confidentiality and strengthening accountability in high-risk sectors.

Iran-centered Evidence shows that positive oil rent shocks can affect corruption through increased military expenditures, and that the erosion of democratic institutions is also identified as a mechanism. These findings carry a clear policy message: sectors that are traditionally "security-oriented" and less transparent can become engines of corruption if they are managed without independent auditing and public reporting mechanisms.

Therefore, an important component of the tax–citizen contract should be the strengthening of oversight and reporting institutions in high-risk sectors, including minimum transparency requirements for public contracts, even if sensitive details are removed; periodic reporting on expenditure and project efficiency; and financial and administrative accountability mechanisms. The subtle point is that sanctions intensify real security and confidentiality concerns. However, the tax–citizen contract is designed precisely to increase the political and institutional cost of unregulated confidentiality and to preserve minimum standards of accountability, even under sanctions.

5.4 | Feasibility and Policy Risks under Sanctions and the Shadow Economy

Any institutional reform package in Iran under sanctions must manage two major risks: 1) the risk of asymmetric pressure on the formal sector and flight into the shadow economy; if tax reform only increases pressure on the formal sector, the shadow economy may expand. The response to this risk is broadening the tax base, reducing discrimination, and tracking transactions, as discussed in *Pillars 1* and *2*, and 2) the risk is a trust gap: If citizens pay taxes but do not observe transparency and fair redistribution, the political contract will not be formed. This argument is why the third pillar, transparent redistribution and locking taxation to services and reporting, is essential and consistent with the idea of combining direct distribution with direct taxation.

6 | Conclusion

Focusing on Iran's economy under sanctions, this article conceptualized the resource curse not merely as an empirical relationship between oil abundance and economic growth, but as a reproducible political–institutional cycle. Under sanctions, oil rent shocks, whether positive or negative, move away from formal and accountable channels and are transmitted through the shadow economy into corruption and institutional erosion. The starting point of the analysis was a precise definition of "effective rent": rent as the difference between the value of production and production or extraction costs, and the argument that sanctions can simultaneously affect production volume, selling price, and extraction costs, thereby reshaping rent shocks. Within the framework proposed in this article, this sanction-induced restructuring of rents increases the "reward for circumvention". It transforms the shadow economy from an informal margin into an infrastructure for rent allocation. This infrastructure generates secondary rents, including licensing, access, information, and exemption rents, while increasing the cost of public oversight.

The Iran-centered Evidence in this article shows that positive oil rent shocks in Iran are associated with a significant increase in corruption, and that mechanisms such as inflation, increased military expenditures, and the erosion of democratic institutions play important roles in this relationship. Within the present framework, these findings lead to a coherent institutional interpretation: the shadow economy grows precisely where inflation and relative price instability, multiple exchange-rate systems, and trade and financial restrictions make transparency more costly. At the same time, increased military expenditures and weakened accountable institutions may lower the threshold for detecting and punishing corruption. The persistence and reinforcement of this cycle can also be observed in historical Evidence, including the coincidence of the 1970s oil shock with rising corruption and the reversal of institutional quality, as measured by liberal democracy, after 1973.

The main conceptual contribution of this article is that it does not treat sanctions merely as an external shock that reduces revenues. Instead, it considers sanctions a factor that alters the incentive structure and the institutional channels of rent allocation. Under such conditions, anti-corruption policies that focus solely on enforcement tools or temporary reforms face a fundamental limitation: as long as a significant share of rents and quasi-rents is distributed through opaque channels, corruption can be systematically reproduced and institutional erosion can persist. Accordingly, the article introduced the tax–citizen contract as an institutional lever for breaking this cycle. The logic of this strategy is based on the taxation effect in the rentier-state literature. When the state relies on resource rents, it taxes citizens less, and demands for representation and accountability weaken. Therefore, gradually reconstructing the tax–representation link, together with transparency and public reporting, can increase social oversight capacity and, consequently, raise the costs of shadow activities and corruption. In addition, the idea of combining direct rent distribution with direct taxation, as a mechanism that brings citizens into policy debate and makes the state more accountable, strengthens the operational basis of this contract.

From a policy perspective, the central message of the article is that mitigating the resource curse in Iran under sanctions requires an institutional package that performs three tasks simultaneously: 1) reducing secondary and license-based rents through rule-based allocation and reduced discrimination, and 2) creating information trails and auditing capacity to limit the shadow economy; and third, strengthening the tax–service–accountability link as the institutional "lock" of the tax–citizen contract. From a research perspective, the article highlights two future directions. The first is to transform the conceptual model into more precise empirical tests by developing clear indicators for the shadow economy in sanctioned Iran. The second is to evaluate different policy scenarios for the tax–citizen contract, including alternative combinations of transparent resource distribution, direct taxation, and public reporting rules, and their effects on the political and economic behavior of the state and its citizens.

Authors' Contributions

S. N. N.: writing-original draft, methodology, conceptualization, visualization, and validation. M. H. F.: validation, writing-review & editing, and formal analysis. The authors have read and agreed to the published version of the manuscript.

Data Availability

The data is available on request from the corresponding author.

Funding

No external funding was received for this research.

Conflict of Interest

There are no competing interests to declare.

Consent for Publication

The authors have given consent for the publication of this manuscript.

Ethics Approval and Consent to Participate

The authors confirm that this research did not involve human participants or animal subjects.

References

- [1] Stijns, J. P. C. (2005). Natural resource abundance and economic growth revisited. *Resources policy*, 30(2), 107–130. <https://doi.org/10.1016/j.resourpol.2005.05.001>
- [2] Van Der Ploeg, F. (2011). Natural resources: Curse or blessing? *Journal of economic literature*, 49(2), 366–420. <https://doi.org/10.1257/jel.49.2.366>
- [3] Mehlum, H., Moene, K., & Torvik, R. (2006). Institutions and the resource curse. *The economic journal*, 116(508), 1–20. <https://doi.org/10.1111/j.1468-0297.2006.01045.x>
- [4] Robinson, J. A., Torvik, R., & Verdier, T. (2006). Political foundations of the resource curse. *Journal of development economics*, 79(2), 447–468. <https://doi.org/10.1016/j.jdeveco.2006.01.008>
- [5] Qin, Y., Xu, Z., Luo, C., & Skare, M. (2024). Investigating the nexus among resource curse, energy transition and sustainable development: Evidence from a global panel data. *Resources policy*, 88, 104445. <https://doi.org/10.1016/j.resourpol.2023.104445>
- [6] ROSS, M. L. (2001). *Timber booms and institutional breakdown in Southeast ASIA*. Cambridge University Press. https://assets.cambridge.org/97805217/91670/frontmatter/9780521791670_frontmatter.pdf
- [7] Farzanegan, M. (2011). Oil revenue shocks and government spending behavior in Iran. *Energy economics-energ econ*, 33. <https://doi.org/10.1016/j.eneco.2011.05.005>
- [8] Farzanegan, M. R., & Zamani, R. (2025). Oil rents shocks and corruption in Iran. *Review of development economics*, 29(2), 887–916. <https://doi.org/10.1111/rode.13149>
- [9] Fakher, H. A. (2023). The impact of GDP, financial development and energy consumption on environmental quality: With an emphasis on six environmental indicators. *Journal of natural environment*, 76(2), 345–363. <https://doi.org/10.22059/jne.2023.346356.2469>
- [10] Narh, J. (2025). The resource curse and the role of institutions revisited. *Environment, development and sustainability*, 27(4), 8187–8207. <https://doi.org/10.1007/s10668-023-04279-6>
- [11] Hodler, R., Lechner, M., & Raschky, P. A. (2023). Institutions and the resource curse: New insights from causal machine learning. *PLOS one*, 18(6), e0284968. <https://doi.org/10.1371/journal.pone.0284968>
- [12] Brunnschweiler, C. N., & Bulte, E. H. (2008). The resource curse revisited and revised: A tale of paradoxes and red herrings. *Journal of environmental economics and management*, 55(3), 248–264. <https://doi.org/10.1016/j.jeem.2007.08.004>
- [13] Ajide, F. M., Dada, J. T., Arnaut, M. N., & Al-Faryan, M. A. S. (2023). Impact of shadow economy on sustainable development in Africa. *International journal of public administration*, 47, 791–805. <https://doi.org/10.1080/01900692.2023.2207117>
- [14] Fakher, H. A. (2021). The role of environmental sustainability, foreign direct investment and trade openness in economic growth: With emphasis on the causal linkage. *Big data and computing visions*, 1(2), 57–70. <https://doi.org/10.22105/bdcv.2021.142227>
- [15] Assidi, N., Nouira, R., Saafi, S., Abdelfattah, W., & Ben Mim, S. (2024). How does governance quality affect the shadow economy-sustainable development nexus? New insights from a dynamic threshold analysis. *Journal of economic studies*, 52(1), 136–160. <https://doi.org/10.1108/JES-09-2023-0469>
- [16] Fakher, H. A. (2020). Analytical Insights on the relationship between economic growth and environmental degradation in framework of EKC hypothesis and various environmental indicators. *Innovation management and operational strategies*, 1(3), 252–268. (In Persian). <https://doi.org/10.22105/imos.2021.272348.1032>