

Jamali Jaghdani, Tinoush; Kvartiuk, Vasyl

Article — Published Version

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Comparative Economic Studies

Provided in Cooperation with:

Springer Nature

Suggested Citation: Jamali Jaghdani, Tinoush; Kvartiuk, Vasyl (2026) : Autocratic Regime Maintenance and Phasing Out Irrigation Water Subsidies in Iran, Comparative Economic Studies, ISSN 1478-3320, Palgrave Macmillan UK, London, Vol. 68, Iss. 1, <https://doi.org/10.1057/s41294-026-00277-5>

This Version is available at:

<https://hdl.handle.net/10419/336861>

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Autocratic Regime Maintenance and Phasing Out Irrigation Water Subsidies in Iran

Tinoush Jamali Jaghdani¹ · Vasyl Kvartiuk¹

Received: 22 March 2025 / Accepted: 10 January 2026
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Abstract

This study examines subsidy retrenchment in Iran, focusing on irrigation water subsidies, the political origins of Iran's water crisis, and the political economy of reforms. Despite significant subsidy reductions in 2010, we argue that agricultural subsidies remained due to a subsidy coalition spearheaded by constituency-embedded rural elites that leveraged electoral competition to resist cuts. Analyzing parliamentary behavior, we highlight that MPs' decisions were swayed by agricultural elites, especially in competitive districts. These dynamics entrench underpriced irrigation inputs, lock in groundwater over-extraction, and raise the political cost of reform. This study reveals how regime maintenance, prioritizing political stability over economic efficiency, can shape policy outcomes that amplify environmental degradation.

Keywords Electoral competition · Local elites · Subsidy retrenchment · Malapportionment · Iran

JEL codes D72 · P16 · Q25 · H23 · Q28

Introduction

Although autocrats enjoy a much broader set of powers than democracies, we observe instances when they fail to implement reforms. Autocracies typically limit democratic deliberation processes and rely on the support of loyal elites having authority over

✉ Vasyl Kvartiuk
kvartiuk@iamo.de

Tinoush Jamali Jaghdani
jaghdani@iamo.de

¹ Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Theodor-Lieser-Str. 2, 06120 Halle (Saale), Germany



certain population groups (Acemoglu and Robinson 2001; Magaloni 2008; North et al. 2006). We observe power-sharing mechanisms between the central and local elites across the spectrum of authoritarian regimes (Magaloni 2006; Reuter 2010). In these settings, local elites have mobilization powers over the local population reserving a right to either generate support for the regime or to instigate distress threatening the regime. Country-wide reforms with redistributive effects may generate welfare losses for certain elite groups (Acemoglu and Robinson 2006). The regime may be unsure about how much it can encroach on the interests of local elites until they start threatening the regime (Wintrobe 1998). If the threats are credible, the regime should react and appease the losers from encroachment (Boix and Svolic 2013).

Phasing out energy subsidies for groundwater (as well as some surface water)¹ pumping for irrigation in Iran in 2010 was an excellent example of the regime's encroachment on the elites' interest it has been relying on. The Iranian regime has subsidized numerous commodities since the Islamic Revolution in 1979, especially fuel and electricity (Zarepour and Wagner 2022). The fiscal burden of the subsidies forced the government to consider a large "Price Policy Reform" in 2010 revising the support of 16 different commodities (including irrigation water and energy for pumping ground- and surface water) (Majlis of Iran 2009). Electricity prices went up in all sectors dramatically except for agriculture which heavily relied on electric pumps for irrigation. Moreover, the government did not increase water use fees for irrigation water provided by expensive dam reservoirs and irrigation channels. We argue that powerful agricultural elites managed to resist the reforms because the Iranian regime relied on their support to maintain its power.

Since the Islamic Revolution of 1979 and the shaping of the Islamic Republic of Iran (IRI), the rural population has been an important political constituency largely shaping the regime's politics. Although the IRI is typically categorized as autocracy (Golkar 2012; Heydemann and Leenders 2013; Milani 2015), it may still rely on its supporters to maintain the regime. The young migrant men from villages to urban areas were very active participants in the Islamic revolution of 1979 (Hooglund 1980). Many of the clerical advocates of the founder of the regime were mostly from rural or low-income urban backgrounds (Amanat 2017, p. 918). The newly formed IRI regime relied primarily on traditional middle and lower-middle-income classes loyal to the Islamic revolution who were either very religious or migrants from rural areas (Amanat 2017, p. 1048). During the first two decades of IRI (1980–2001), the regime has established a Ministry of "Reconstruction Jihad" for rural developments and catering to rural dwellers instrumentalizing their grievances with the ultimate aim to consolidate power (Lob 2020; p. 335). Furthermore, as IRI has followed a self-sufficiency policy in agri-food production since its creation (Ketabchy 2021), its dependency on the rural population has increased. Subsidized irrigation water has been the key in promoting this agenda because over 90% of the country features arid lands with high evaporation and erratic rainfall (Nouri et al. 2023). This dependency on rural communities, in particular, can be observed in the overrepresentation of the more conservative and loyal rural population in the Iranian legislative body. We argue that this dependency has contributed to the increased political weight of rural

¹ Some surface water must be pumped wherever gravity-based water flow is impossible.



population and, as a result, to their ability to effectively resist the reforms. Moreover, we show how regime maintenance links distributive politics to environmental costs of irrigation pricing.

To test whether rural elites were able to resist subsidy retrenchment, we use unique data on Iranian parliamentarians, district apportionment, and water infrastructure. We, first, demonstrate the tendency of the IRI regime to overrepresent the loyal rural population in its legislative body (Majlis). Then, we model the behavior of the Iranian MPs in supporting the legislative motion petitioning for full subsidization of irrigation water in the agricultural sector for major agricultural commodities. The decision to support the motion may be incentivized by the pressure from powerful agricultural interest located in the respective electoral districts: predominantly agricultural producers but also processors and exporters. However, local elites may be responsive to local needs to a different degree depending on their confidence in their incumbency. Should MPs face political competition, they may be forced to cater to the needs of local elites hoping for their support in voter mobilization. On the other hand, MPs with strong local political positions may be more inclined to give in to the pressures from the central government and position themselves against retaining the subsidies.

We find that the IRI regime's reliance on rural elites contributed to rigidities in agricultural energy and irrigation water subsidies retrenchment. First, rural areas were clearly overrepresented to minimize the risk of urban unrest, which may be more dangerous for the regime. Second, Iranian MPs supported the motion on retaining irrigation water subsidies in agriculture in line with our hypotheses on the pressures from elites. The MPs were more likely to support local elites' grievances in case of higher political competition.

The rest of the paper is organized in the following fashion. Section "[Theoretical Framework](#)" presents our theoretical framework whereas section "[Institutional Context](#)" sketches the Iranian institutional context related to the irrigation water subsidy, the 2010 reform and the key stakeholders. Data and methods are described in the section "[Data and Methods](#)". In section "[Results](#)", we present the results and robustness checks. Finally, section "[Conclusion](#)" concludes.

Theoretical Framework

"Rural Bias" in Iranian Politics

Although dictators insulate themselves from potential challengers, local governments in authoritarian states may be vulnerable to political competition. Because of regime maintenance incentives, dictators are forced to create institutions incorporating citizens' participation and to seek legitimacy (Lust-Okar 2006; Reuter et al. 2016). Although Iran possesses features of an authoritarian state, elections may represent a reasonably meaningful institution and, as a result, an accountability mechanism for local governments (Alem et al. 2011; Bakhtiari 1993; Qasemi et al. 2011). Thus, citizen groups may to some degree find an outlet in the Iranian parliament in representing their interests. Should they believe this channel is ineffective, the threat of violence in the form of civil unrest or coups may be an alternative way to affect



policy outcomes (Acemoglu and Robinson 2001). The less there is respect for electoral institutions and other democratic mechanisms of government's accountability to the citizens, the higher is the danger for citizens to voice their discontent via violent protests or a coup (Rodrik 2000). Thus, it is in the regime's interest to build institutions that would channel the population's grievances via the electoral mechanism.

Optimizing political support, an authoritarian regime may be incentivized to overrepresent rural grievances. Rural population is typically poorer, less mobile, more conservative, and more religious making it more dependent on local strongmen (Boone 2014; Samuels and Snyder 2001). Rural residents may thus be more loyal to the regime in comparison to the urban population with its often anti-incumbent sentiment (Bratton and van de Walle 1997). This may incentivize the regime to institutionally overrepresent rural grievances to insulate itself from the threats of urban elites. Legislative bodies represent a natural avenue for the regime's "rural bias".

A major way to dilute urban grievances is to use electoral malapportionment. The logic is to increase the shares of legislative seats in certain electoral districts to the extent that they are higher than their respective shares of the population (Monroe 1994). The outcome will be that some electoral districts will be overrepresented in the legislative body. Thus, the regime may be able to increase the influence of well-behaved rural citizens and mitigate the representation of potentially less predictable and stable urban poor.

Malapportionment with "rural bias" may be achieved in a number of ways. First, a so-called "natural" malapportionment is a result of the natural urbanization processes and does not require the regime to do anything (Snyder and Samuels 2004). Thus, over time rural areas will automatically become overrepresented in local legislatures. On the other hand, the regime may manipulate the districts' borders, set a minimum or maximum number of seats per district regardless of the population, and change the distribution of seats across the regions without changing district borders or the total number of seats.

Local Elites and Political Competition

Redistribution represents a key instrument for an autocratic regime to retain power. In particular, these countries can buy the loyalty of local elites and incentivize them to fall in with the regime's agenda especially well if they have large resources to redistribute. Thus, countries with large extractive industries were found to be more insulated against coups (Bueno De Mesquita & Smith 2009; Ulfelder 2007). In the Iranian context, Mahdavi (2015) found that Iranian MPs from the oil-rich regions were in a better position to cater to local elites and secure their political support.

Regime maintenance incentivizes governance arrangements that tether districts to central transfers while deepening dependence on subsidized, common-pool environmental resources. In such settings, local agricultural elites convert intergovernmental transfers and underpriced irrigation inputs (water and pumping power) into targetable rents, and electoral competition increases the marginal payoff to defending those rents (Arulampalam et al. 2009; Weingast 2009). Because benefits are concentrated while environmental harms from depletion and subsidence are diffuse and delayed, organized beneficiaries mobilize to preserve the status quo. These dynamics



generate policy feedback and an equilibrium where cheap inputs expand pumping, heighten groundwater dependence, and raise the political cost of reform, which in turn entrenches underpricing (Pierson 2000; Weingast 2009). Consequently, MPs should be more likely to defend irrigation subsidies, where irrigation dependence is greater. With this framework in place, we turn to elite mobilization and electoral competition whose effects intensify in districts more reliant on groundwater extraction.

First, local elites may exert pressure on the MPs incentivizing redistribution. With the commercialization of farming, we observe emergence of large and powerful agricultural producers. These stakeholders can overcome Olson's (1965) collective action problem and may coordinate on articulation of their needs to local MPs. On the other hand, poorer and more numerous small farmers are less likely to coordinate on lobbying their interests (Thomson 2017). As a result, we expect large farmers to be better equipped to lobby their interests locally. Although urban agribusinesses and processors also benefit from subsidized water, we frame subsidy preservation as the work of a broader coalition and focus empirically on its rural, constituency-embedded node. This is warranted, first, because electoral leverage is local where MPs are selected in district races, and large rural producers can directly reward or sanction them through votes, mobilization, and endorsements. Second, the incidence and salience of the irrigation subsidies is local translating immediately onto farm costs and water access, generating organized preferences in agricultural districts. Third, our district-level data cannot capture this channel because urban allies act mainly through national venues such as industry associations, ministerial lobbying and financing. Accordingly, while we acknowledge the urban wing of the coalition, our analysis centers the rural actors who are the most direct and immediate source of pressure on MPs.

Second, local political competition may determine the vulnerability of local MPs to the pressure from local elites. In particular, MPs may be incentivized to cater to local elites more if they are challenged by a competitor as they hope for their political support in return (Grossman and Helpman 2001; Hansen 1991). On the contrary, if local MPs enjoy high levels of support, they may be less concerned with the needs of local elites and care more about the central government's agenda. Consequently, we expect MPs who do face high levels of competition from potential challengers to defend irrigation subsidies. However, an office-seeking politician will be forced to invest in cementing power in case of a political threat.

Stakeholder Interaction Framework

Figure 1 demonstrates a stakeholder logic in which regime maintenance sets the conditions that make subsidy defense electorally attractive for MPs. The central government, prioritizing stability and urban unrest avoidance, designs and sustains rural-biased malapportionment that over-represents agricultural districts in the parliament. This institutional choice does not mechanically determine policy, but it tilts the representative arena by raising the relative weight of constituencies most exposed to irrigation costs and water scarcity. Importantly, it increases the share of MPs whose careers depend on satisfying those constituencies.



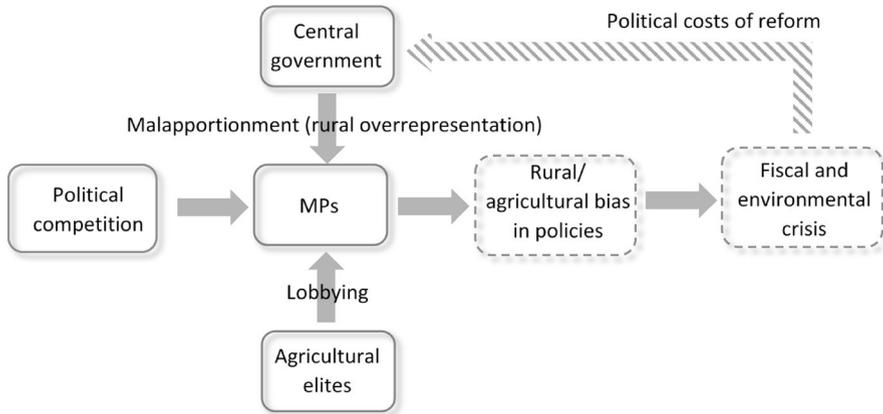


Fig. 1 Summary of the theoretical framework

At the district level, agricultural elites possess organizational resources, local media access, and brokerage networks that allow them to translate material interests into political pressure. Their incentives are to maintain the subsidies which are visible rents that can credibly be attributed to respective MPs. As a result, local elite leverage turns the institutional tilt into policy demand for irrigation-friendly positions.

Political competition conditions how strongly that demand maps onto MP behavior. Where contests are tighter, the expected electoral returns to satisfying elite demands are higher. MPs in these settings have stronger career incentives to champion subsidy defense publicly and to invest in visible constituency services aligned with elite priorities. The interaction between elite pressure and competition therefore amplifies a rural policy bias generated upstream by malapportionment, culminating in subsidy rigidity whose downstream consequences (fiscal and environmental crises) raise the political costs of reform for the center and reinforce the original survival logic (right-hand feedback in Fig. 1).

Institutional Context

Irrigation Water Subsidy

The IRI regime provides affordable irrigation water by building large-scale dams and irrigation systems (Mehta et al. 2024), and through the expansion of irrigation wells using subsidized electricity or fuel for pumping (Jaghdani and Kvartiuk 2021), enhancing rural communities' dependence on such water supplies (Zare-Chahouki and Sanaei 2017; Zarei 2022). As a result of this long tradition of subsidization, water user fees paid by farmers do not follow any efficient water pricing rationale. First, user fees for irrigation water from regulated surface water are too low and do not correspond to its provision cost (Madani et al. 2016). According to the Law on Setting Irrigation Water Tariffs from 05.09.1990, the fees are not linked to the construction and maintenance of the water infrastructure but they are set exogenously at 3% of



the value of crops per ha for modern, 1% for traditional, and 2% for mixed irrigation systems. Second, as for instance Jaghdani et al. (2012) show, the economic value of water is substantially higher than the official prices.

Subsidized electricity for groundwater pumping had generated incentives to extract large volumes of water contributing to aquifers' depletion and general water scarcity. Importantly, 85% of the extracted groundwater was used for irrigation in 2014 (WRBS 2016) and 70% of the electricity consumption in agriculture in 2014 was attributed to irrigation water pumping (Bagherzadeh 2017). As of 2023, more than 410 out of 609 aquifers were in critical condition due to water depletion (IRNA 2023). The number of legal wells has increased from 47 thousand in 1973 before the Islamic revolution to almost a million in 2022 and they were predominantly used for irrigation (WRBS 2024). As a result of the heavy extraction of groundwater resources, land subsidence can be observed all over the country (Noori et al. 2023).

Figure 2 demonstrates the decline of groundwater extraction after 2006. This stands in contrast to the electricity consumption in agriculture indicating that more energy is needed to extract increasingly depleted groundwater. Because roughly more than half of the whole agricultural land was irrigated (Nouri et al. 2023), many Iranian farmers faced increasing water scarcity. This mounting water crisis underscores the paradox of Iran's irrigation subsidy regime: while intended to support agricultural production and rural livelihoods, these policies have deepened dependence on groundwater and accelerated aquifer depletion. Below we argue that the persistence of these subsidies reflects distributive politics in line with IRI's regime maintenance incentives, which exacerbates long-term environmental risks.

Increasing fiscal burdens pushed Iran to launch a 5-year plan "Price Policy Reform for Elimination of Subsidies" stipulating vast subsidies retrenchment in most economic sectors starting in 2010. The subsidy cuts were predominantly motivated by a large budgetary burden and were expected to save 50–60 billion USD annually (Guillaume et al. 2011). The reforms were extensively discussed in the media and the

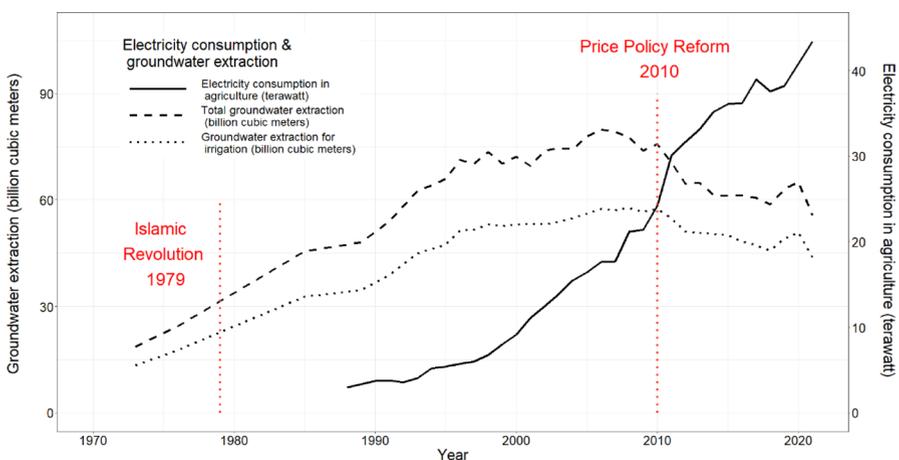


Fig. 2 Electricity consumption and groundwater extraction. *Source:* Iran energy balance sheet (1988–2022) and Water Resources Base Study (WRBS 2024)



Iranian press called it a “biggest surgery” to the country’s economy in the last half a century.

Figure 3 demonstrates the effects of the reforms on the electricity prices for different types of consumers. We observe substantial price hikes for domestic and industrial consumers. However, electricity price increases in agriculture were much more modest in comparison to other sectors. After the initial hike to 120 Rials/kWh in the beginning of 2011, the pressure from the agricultural sector forced the Minister of Agriculture to reduce the price to 80 Rials/kWh (Khalilian 2011). The prices were stable until early 2014 when incremental price increases were implemented. These price trends suggest that agriculture was treated by the Iranian regime substantially differently within the subsidies retrenchment program. Importantly, no user fees were imposed on the groundwater use itself and the reforms did not change the status quo. The user fees for the irrigation water from dams and reservoirs remained the same.

Since the launch of the 5-year plan, the IRI regime has made a number of attempts to reduce the price of electricity for groundwater pumping. First, in 2015, the government allowed 20 h per day of free groundwater and surface water pumping if the farmers avoided pumping during four peak hours of the day (Chitchian 2015). Second, a remarkable event that took place in 2015 was a legislative motion calling to fully subsidize irrigation water for the production of certain strategic crops (Majlis of Iran 2015). Lack of implementation clarity in the “Price Policy Reform” of 2010 and weak political will to change the irrigation price policy opened an avenue for a legislative initiative to fully subsidize both, surface and groundwater for irrigation.

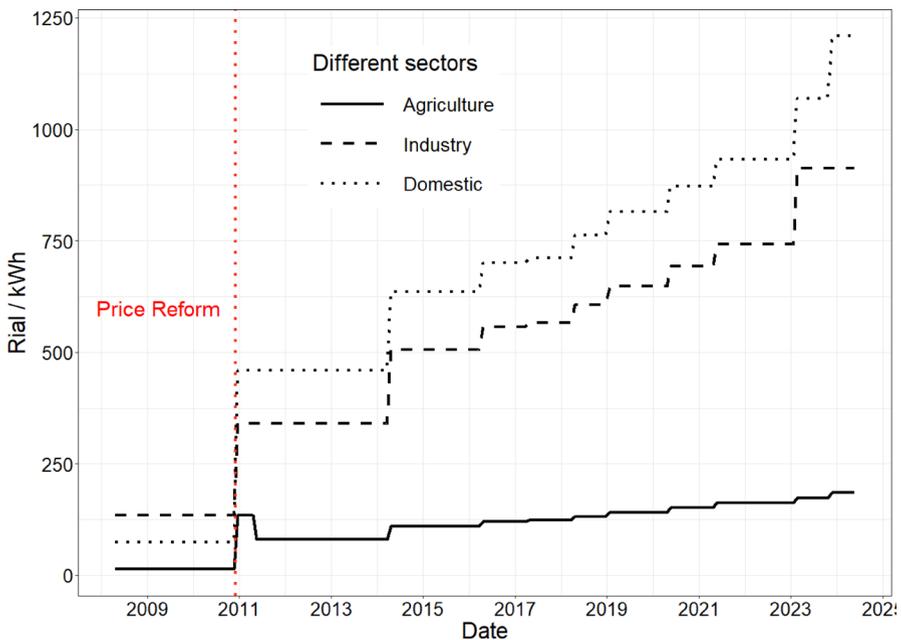


Fig. 3 Electricity prices for different types of consumers. *Source:* Ministry of Energy (MoE)



This clearly populist motion was issued shortly before the 2016 Majlis elections and was signed by 96 out of 282 deputies. The initiative was scheduled for discussion in the Plan & Budget Commission with Ministry of Energy officials and government-affiliated sources publicly criticized it as likely to increase water use and damage infrastructure (IRNA 2015; Young Journalists Club 2015). Even experts in the Parliamentary Research Center opposed the motion and advised for more efficient irrigation water pricing in their report (Majlis Research Center 2016). This suggests that the motion posed a substantive challenge to subsidy retrenchment and was not just a symbolic gesture. Although it was never adopted, it represents an exceptional example of how agricultural interest may transpire in the MPs voting behavior². Although signing a motion does not equal final policy-making, it is analytically valuable in Iran where roll-call votes are not public. Signatures provide the clearest available signal of MPs' preferences, and the 2015 proposal to abolish irrigation water charges offers a unique opportunity to study the political economy incentives shaping parliamentary behavior.

Key Stakeholders

Substantial size inequality among Iranian agricultural producers may contribute to the emergence of local agricultural elites. Table 1 demonstrates the distribution of agricultural producers by size. Although farms with operational land of more than 50 ha represent only 1% of the total number of farms, they control approximately one-fifth of all agricultural land. Whereas smallholders (with less than one ha of land) controlled only 2.45% of land and accounted for 36.86% of all agricultural producers. As a result, we observe many districts with highly unequal land distribution among the farmers. This is a fertile ground for the emergence of local agricultural

Table 1 Number of agricultural producers by size. *Source:* National Agricultural Census 2003 and 2014

	2003				2014			
	Number of farms	% from total number	Operational area (ha)	% from total area	Number of farms	% from total number	Operational area (ha)	% from total area
Less than 1 ha	1,205,032	34.62	407,070	2.30	1,238,159	36.86	403,061	2.45
1 to 5 ha	1,319,962	37.92	3,032,220	17.16	1,276,221	37.99	2,813,403	17.08
5 to 20 ha	786,336	22.59	7,019,167	39.73	680,699	20.26	5,987,737	36.34
20 to 50 ha	135,649	3.90	3,736,337	21.15	129,265	3.85	3,548,277	21.54
More than 50 ha	33,750	0.97	3,470,405	19.65	35,065	1.04	3,724,131	22.60
Total	3,480,729	100.00	17,665,198	100.00	3,359,409	100.00	16,476,609	100.00

² The info on MPs' voting in the Iranian Parliament is not public and is typically not recorded. However, the data on motions support are available on the Parliament's website.



elites that can exert social and even political influence on local public administrations and politicians. Furthermore, this influence may be translated into biased decision-making of the deputies from respective electoral districts in the Iranian legislature.

The Iranian Parliament (“Majlis” or “Islamic Consultative Assembly”) consists of 290 deputies that vote on legislation that afterwards has to be ratified by the Guardian Council—a 12-member body that oversees political processes in accordance with the Islamic Law and the Constitution. In addition, the same council supervises elections, and all candidates standing for any election (Presidential elections, parliamentary elections and local council elections) must meet with its prior approval. This vetting process excludes individuals deemed politically unsuitable, meaning that electoral competition occurs only among regime-approved candidates. Our analysis therefore focuses on variation within this filtered pool of MPs, rather than the broader spectrum of potential political actors.

There are 207 electoral district areas (in Persian language: “*Hauzeh Entekhabati*”) spread across 31 provinces that were last revised in 2000 (Boroujerdi and Rahimkhani 2018). Five electoral districts belong to religious minorities. Iranian deputies compete in single- and multi-member districts. Although Iran is considered to be an authoritarian regime with the clear patrimonial tradition of power (Golkar 2012; Heydemann and Leenders 2013; Milani 2015), we observe a substantial degree of electoral accountability³ (Alem et al. 2011; Bakhtiari 1993; Qasemi et al. 2011). Thus, deputies may feel incentivized to cater to local interests in order to be reelected. Interestingly, only 30% of the voters were satisfied with their representative in the Parliament during the 9th term of 2012–2016 (iPOS 2016). In 2015, the Iranian political landscape was formed around the conservative forces close to Iran’s supreme leader (“principalists”) and the reformists allied with president Hassan Rouhani (Brumberg and Farhi 2016). In addition, MPs are often affiliated with the Islamic Revolutionary Guard Corps (IRGC)—a special branch of the armed forces that was intended to protect the IRI regime after the revolution of 1979. Over time, it has grown economically and politically aligning itself with the conservative and supreme leader (Brumberg and Farhi 2016)⁴.

Electoral district borders were formed ca. 100 years ago, during the time of constitutional monarchy, and little has changed since then. Iranian population was much more evenly distributed across the country. In the course of the century, urbanization processes have reduced the populations of some jurisdictions resulting in a situation where MPs from rural jurisdictions represent much smaller constituencies than their urban counterparts. This has gradually led to an overrepresentation of rural interests in the parliament. Iranian government has been under pressure to optimize voter-seats ratios but the reforms never were pulled through. Since 1999, the Parliament

³ The selection process of candidates by Guardian Council to participate in the Parliamentary elections became much more restrictive, selective, and closed especially in the most recent elections of 2020 and 2024 with accompanying countrywide boycotts by citizens.

⁴ The IRGC is recognized as a terrorist organization by the US government since 2019 (U.S. Department of State 2019). In June 2024, the government of Canada also listed the IRGC as terrorist entity (Public Safety Canada 2024). In January 2023, July 2023 and April 2024, the European Parliament voted to list IRGC as a banned terrorist organization (European Parliament 2023, 2024). In January 2026, EU foreign ministers designated the IRGC as a terrorist organization.



has launched several initiatives to balance representation in the Parliament creating new 212 electoral districts and 31 electoral provinces. Although the attempts have been repeated in 2002, 2007, and 2010 (Maghsoudi and Ebrahimabadi 2012), the Parliament or the Guardian Council have always been able to halt the reforms. One of the latest unsuccessful attempts to redraw electoral district boundaries commenced with a motion in November 2018, endorsed by 121 MPs (IRNA 2018). More recently, a 2024 initiative to adjust these borders and increase the number of MPs to 330 also failed (IRNA 2024). The discussions on increasing the number of MPs are ongoing.

Data and Methods

The data utilized for the study are drawn from official Iranian sources. Access to data in Iran is extremely challenging because of access restrictions and the quality of data is often poor. Nevertheless, we do our best to extract the maximum information from the data available. First, the variables on the characteristics of the 202 electoral districts were constructed based on the data from the Iranian Ministry of Interior and the Iranian Statistical Center. County-level data was aggregated in order to generate district-level proxies that correspond to each electoral district.⁵ Second, personal data on the MPs were collected from the Islamic Parliament Research Center, Boroujerdi and Rahimkhani (2018) and Iran Data Portal.⁶ Out of all 290 members of parliament, we considered 282 because by the time the 2015 legislative motion was introduced as two deputies passed away, one resigned and five represented religious minorities which would not give additional information to the sample.

Before our main estimations, we, first, examine whether the IRI regime overrepresents rural grievances in its political agenda via malapportionment. In particular, we construct a malapportionment index for a given electoral district MAL_i following Samuels and Snyder (2001). The malapportionment index is a ratio of the percentage of allocated seats for a given electoral district over a percentage of potential voters within that district ($MAL_i = \% Seats_i / \% Potential\ voters_i$) and represents how a given district i is over- or underrepresented in the Parliament. Values below one suggest that a district i is underrepresented and above one – overrepresented. Our goal is to estimate the following Tobit model using the malapportionment index of ninth parliamentary period as a dependent variable. As MAL_i cannot be less than zero, Tobit model is employed for the estimation as follows:

$$MAL_i^* = \beta_0 + \beta_1 RurVoters_i + \beta_2 Controls_i + \epsilon_i, \epsilon_i \sim N(0, \sigma^2) \quad (1)$$

where the latent variable MAL_i^* satisfies the classical linear model assumptions (see Wooldridge 2016) and

⁵ Electoral districts for the 2012–2016 Majlis term were unions of whole administrative counties (shahrestans) with no district splitting a county (Mulaee and Ahmadi 2021). We construct a county to district crosswalk using Statistical Center of Iran province-county codes and use summing as an aggregation technique. We use the most recent pre-2015 data. The crosswalk table with 429 counties into 202 electoral districts is available on request.

⁶ Iran Data Portal: <https://irandatportal.syr.edu/about-us>.



$$MAL_i = \begin{cases} MAL_i^*, & MAL_i^* > 0 \\ 0, & MAL_i^* \leq 0 \end{cases} .$$

In Eq. (1), $RurVoters_i$ represents the share of rural voters out of total number of voters. Apart from the province fixed effects, we control for whether a district represents a large city and for the share of wheat in the district's total agricultural production as it is the most important crop in the IRI regime's self-sufficiency policy (Jaghdani et al. 2024). The latter represents a strategic crop which is supported by the regime aiming at independence from imports.

Our main goal is to estimate the probability of Iranian MPs to support the motion for fully subsidizing irrigation water for many agricultural crops. We thus construct the following Probit model:

$$\Pr(Y_j = 1|X) = \Phi(\beta_0 + \beta_1 Elites_j + \beta_2 PolComp_j + \beta_3 Controls_{ij} + \varepsilon_{ij}) \quad (2)$$

where Y_j is a binary dependent variable reflecting two states: MPs who signed the 2015 motion on free irrigation water ($Y_j = 1$) and the MPs who did not ($Y_j = 0$). Notation j defines each MP and respective electoral district. Since roll-call votes are unavailable in Iran, motion signatures provide one of the few observable indicators of MPs' preferences and their alignment with constituent and elite demands. Because the 2015 motion is the only chamber-wide revealed-preference measure available, we treat it as a critical case for identifying the political logic of subsidy defense. Because this evidence is cross-sectional, establishing persistence over time would require longitudinal legislative data.

Our key explanatory variable $Elites_j$ is proxied by two variables. First, we use the share of non-resident agricultural producers in the total number of agricultural producers in each district. These farmers typically reside in urban areas close by and run their farming operations. Empirical studies in Iran show that such producers tend to be larger-scale, more commercialized, and often cultivate strategic crops (Ajami 2005; Tavakkoli 2015; Tavakkoli and Almasi 2016). Historical evidence also suggests that the land reform and subsequent commercialization of agriculture created a class of large landholders who, despite living outside the villages, maintained strong influence in local affairs (Ajami 2005; Harris and Kalb 2019). Similar patterns are found worldwide: absentee or non-resident landowners are often wealthier, better connected to urban political networks, and more capable of shaping local governance (Debonne et al. 2021; Dubb et al. 2017; Kadirbeyoglu 2017; Petrzalka 2014; Sikor and Lund 2009). Their reduced dependence on local reciprocity and greater access to resources make them de facto rural elites.

Because non-resident farmers may capture only part of local elites (larger, commercially oriented, and capital-mobile farms), it is important to also account for large farms that can exert leverage over MPs. Specifically, we include the share of non-household agricultural producers within a given electoral district as an alternative proxy. Compared to numerous small households, such farms face lower collective-action costs and possess greater capacity to lobby and coordinate (Olson 1965). If local organizational capacity is the channel through which elites pressure representa-



tives, MPs from districts with a higher non-household share should be more likely to support the pro-subsidy motion.

Although difficult to rule out, reverse causality is unlikely in our setting. Because irrigation subsidies are a national policy, influential farmers do not obtain rents from relocating to districts with MPs predisposed to support subsidies when the cheaper and more certain strategy is to apply pressure on the incumbent local MPs. Moreover, both elite proxies precede the motion and change slowly due to inherent immobility of land, irrigation equipment, wells/permits, and perennial investments. However, reverse causality could arise if pro-agriculture MPs attract irrigation projects, credit, regulatory forbearance, or agro-processing that expands large farms. We therefore refrain from strict causal claims and treat the estimates as associations.

Another key explanatory variable is political competition $PolComp_i$ reflecting the share of votes an MP obtained. This proxy reflects the threat from the potential challengers and may affect the responsiveness of the MPs to local needs. In addition, it may determine the MPs' responsiveness to the needs of local agricultural elites as opposed to the central government's agenda of subsidy retrenchment. Thus, we include an interaction term between the proxy for political competition and the elites. We expect the responsiveness of local MPs to agricultural elites to be higher if they face higher political competition.

We use several control variables in our specifications. First, we include demographic characteristics of the MPs such as their age, sex, education, and religion. Second, we control for the political orientation dummy which captures the main partisan cleavage in Iranian politics: Principalists generally favor redistributive, state-centered policies, while reformist and independent MPs tend to advocate more market-oriented approaches (Brumberg and Farhi 2016). IRGC affiliation, in turn, serves as a proxy for political factionalization, since IRGC-affiliated MPs combine loyalty to regime stability with diverse strategies ranging from fiscal conservatism to support for distributive measures that benefit their constituencies or sectors linked to the Corps. Third, to capture local water needs and the salience of irrigation in each district, we include the number of wells per 1000 hectares of agricultural area. This variable serves as a proxy for irrigation dependence, since districts with higher well densities tend to experience greater groundwater dependence and are more vulnerable to aquifer depletion. Following our theoretical framework, MPs from such constituencies might have stronger incentives to support motions preserving irrigation subsidies, independent of elite pressure. Finally, we include province dummies in each of the specifications. Province fixed effects absorb much of the province-level business environment and lobbying context, so identification comes from within-province variation across districts, aligning naturally with the rural channel of elite pressure.

Table 2 demonstrates the descriptive statistics of the variables we used in our estimations. We observe a good variation among the MPs' characteristics in our sample. In the 9th Parliament, an average MP was 52 years old and had not even one year of parliamentary experience. Only 3% of women were MPs, roughly 60% held a Ph.D., and roughly one-third were affiliated with the IRGC. Interestingly, non-resident and commercial farms accounted for 24% of all agricultural producers. However, this variable demonstrates a substantial variation in our sample meaning that there are



Table 2 Descriptive statistics

Variable	Mean	Standard deviation	Min	Max	Source of data
<i>MP-level variables (282 observations)</i>					
Motion support (1 – signed; 0 – did not sign)	0.33	0.47	0	1	Public list of motion signatories (Majlis parliamentary records)
Share of obtained votes by MPs (%)	40.47	11.76	20.58	78.69	Islamic Parliament Research Center, Boroujerdi and Rahimkhani (2018), and the Iran Data Portal
MP's gender dummy (1 - female, 0 - male)	0.03	0.17	0	1	
MP's age	51.98	7.23	34	76	
MP's education (1 - PhD holder, 0 - other)	0.57	0.5	0	1	
Past parliamentary experience (electoral periods)	0.67	1	0	6	
Affiliation with the IRGC (1 – yes; 0 – no)	0.33	0.47	0	1	
Political orientation dummy (1 – principalists, 0 – other)	0.64	0.48	0	1	
Membership in Agricultural Commission (1 – yes; 0 – no)	0.09	0.28	0	1	
<i>Variables on the level of an electoral district (202 observations)</i>					
Malapportionment index	1.56	0.98	0.19	6.13	National Census 2016 and the Parliament website
Number of MPs per electoral district	1.42	2.16	1	30	
Share of non-resident individual and commercial farms (%)	23.79	12.94	2.05	70.66	National Census 2016 and National Agricultural Census 2014
Share of households involved in agriculture (%)	21.14	11.29	0.24	52.59	
Number of wells per 1000 ha	33.83	53.86	0	574.84	
Share of rural voters out of total (%)	37.64	17.84	1.35	85.35	
Dummy for districts with a city with >500 thousand population (1 – yes; 0 – no)	0.09	0.29	0.00	1.00	
District population (thousands of persons)	399.03	790.27	42.1	9852.17	

districts with predominantly local and small farms and there are also districts with commercial modern farms whose owners reside in nearby cities. Thus, the average farm size is 5.64 ha but it reaches over 30 ha in some districts. Our descriptive statistics also suggest that energy plays a decisive role in extracting irrigation water. On average, four-fifths of the farms irrigate but only one-fifth of district villages have access to permanent canals that do not require energy to extract irrigation water.

Results

“Rural Bias” in Political Representation

We find that during the ninth parliamentary period of 2012–2016 over- and underrepresented electoral districts are roughly equally distributed in the Iranian parliament. Figure 4 demonstrates the histogram of the distribution of the malapportionment



index. We see that overrepresented districts (52.84%) may be overrepresented to different extents with the maximum value of the index reaching 6.13. This means that the share of seats allocated is six times larger than the actual share of voters. It is also evident that there is a substantial number of underrepresented districts with malapportionment indices below one. We find that ca. 30% of the underrepresented districts have malapportionment indices below 0.7 with the lowest values belonging to the large metropolitan cities like Tehran (0.19) and Karaj (0.22) located in the same metropolitan area as Tehran. As a result, we observe a rural bias in the IRI's political representation. The grievances of the urban population which may challenge the regime are strategically underrepresented and the interests of the predominantly more loyal rural population are overrepresented. The question arises if and how the IRI regime managed to steer the political representation in this favorable outcome that helps cementing its power.

The IRI regime had opportunities to adjust the electoral representation over the years but failed to do so. The country's population grew from 33 million persons in 1976 with 53% living in rural areas (Pilehvar 2021). In 2015, the population went up to 79 million with only 26% living in rural areas (Pilehvar 2021). The only seats adjustment took place only in 2000 when the size of the parliament went up from 270 MPs to 290 (Boroujerdi and Rahimkhani 2018) and stayed the same until the latest parliamentary election of 2024. Seats and districts adjustment has been on the agenda of the government several times but never resulted in real changes (Pilehvar 2021).

Figure 5 presents lowest smoother of a relationship between the malapportionment index and the share of the rural population for 1980 and 2015. Our first obser-

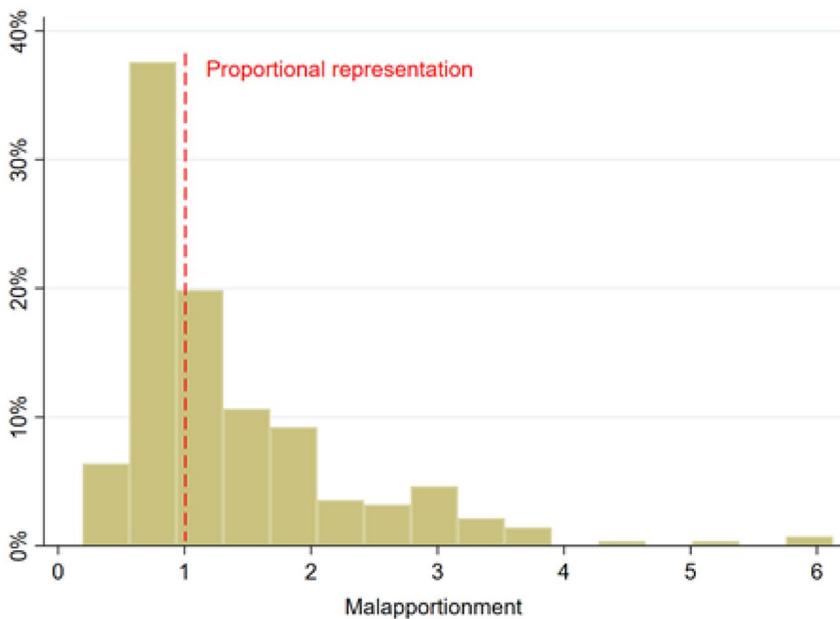


Fig. 4 Distribution of the malapportionment index



vation is that the political representation was much more proportional in 1980 with malapportionment indices much closer to one. However, even in 1980, rural areas were significantly overrepresented in the parliament. The situation looks dramatically different in 2015 where overrepresentation of rural electoral districts is larger in magnitude and is extreme for very rural districts (with over 70% of the population). For instance, districts like South Khorasan, Zanjan, or East Azerbaijan have high malapportionment indices and shares of rural population. On the other hand, it is evident that the IRI regime is underrepresenting urban areas with a share of rural population under ca. 15%. Above this mark, there is a clear positive correlation between the share of the rural population and overrepresentation in the parliament. This relationship, however, needs to be teased out with a multivariate analysis.

Table 3 presents the estimations of the representation in the Iranian parliament. We run Tobit models with two dependent variables: the malapportionment index and the simple number of representatives in each electoral district. We see that, for both specifications, the share of rural voters is positively and significantly associated with the dependent variables. Considering the opportunities the IRI regime had to adjust the number of MPs during several instances before 2015, these estimations represent evidence that the IRI regime deliberately overrepresented rural grievances in its legislation.

It is informative to examine the control variables in our estimations. In both specifications, we control for the province fixed effects because some regions may have political or economic reasons to be represented differently. As expected, districts with larger populations are represented by more MPs. However, we see that cities with

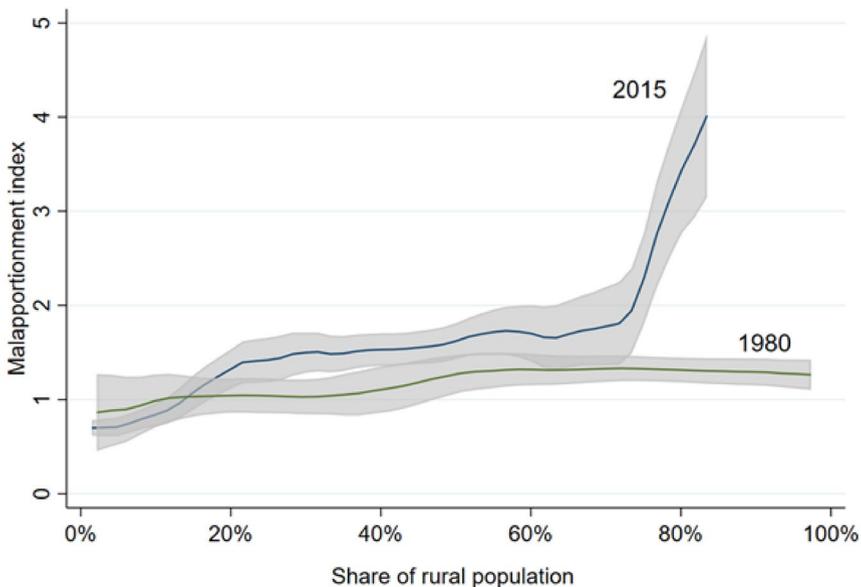


Fig. 5 Lowess smoothers: malapportionment vs. rural population share (1980 and 2015)



Table 3 Estimations of the districts' representation in the Parliament. *Source:* Own estimation

	Tobit (1)	Tobit (2)
	Malapportionment index	Number of representatives
Share of rural voters out of total	2.389*** (0.000)	0.694** (0.015)
Total district population	-0.000 (0.409)	0.000*** (0.000)
Share of agricultural area under wheat cultivation	-0.441 (0.392)	-0.567 (0.228)
Dummy for districts with a city with > 500 thousand population (1 – yes; 0 – no)	-0.064 (0.812)	-0.934*** (0.008)
Constant	0.287 (0.298)	-2.087* (0.098)
Province dummies	Yes	Yes
Observations	195	195
Pseudo R^2	0.158	0.608

We present raw Tobit coefficients. Significance level: *10%, **5%, ***1%. p-values are reported in parentheses

more than 500-thousand population tend to be underrepresented in the parliament. Strategic wheat crops appear not to play a role in either specification.

Local Elites and Resistance to Subsidies Retrenchment

Table 4 presents the estimations of the probit model with different specifications for the support of the legislative motion for free irrigation water. An immediate observation is that both of our key explanatory variables have significant marginal effects in the expected direction. Thus, a 10%-increase of the share of non-resident agricultural producers within a given electoral district translates into ca. 9% higher likelihood of the motion support by local MPs. We observe the effect of a similar magnitude of the share of non-household producers. Both marginal effects are significant at the 1%-level. As a result, we find evidence that local agricultural elites were able to exert pressure on local MPs in their decision-making with respect to the subsidy retrenchment.

Importantly, we find political competition to be an important factor in supporting the motion on free irrigation water. First, we find a small negative direct effect suggesting that if the MP's support during the previous election was high, s/he will be less likely to support the motion. This is in line with our hypothesis that political competition increases the responsiveness of local politicians towards the respective elites. Second, we find that political competition facilitates the effect of local elites because the respective interaction terms (models (2) and (4)) are negative and significant. The predicted effects of local elites depending on the levels of political competition are depicted in Fig. 6. Both of the predicted proxies for local agricultural elites produce very similar graphs. We depict two scenarios with 25% (high political competition) and 75% (low political competition) support. It is evident that in case of a low threat from challengers, MPs tend to reject the motion on free irrigation water



Table 4 Estimation of the support of the legislative motion for free irrigation water. *Source:* Own estimation

	Probit (1)	Probit (2)	Probit (3)	Probit (4)
Share of ag producers living outside the production district	0.896*** (0.007)	0.890*** (0.006)		
Share of non-household agricultural producers			0.864*** (0.007)	0.858*** (0.006)
Share of obtained votes by MP	-0.004 (0.148)	-0.004* (0.075)	-0.004 (0.146)	-0.004* (0.082)
Share of rural voters out of total voters within district	0.483** (0.023)	0.441** (0.037)	0.493** (0.021)	0.453** (0.033)
Number of wells per 1000 ha of ag land	0.001* (0.050)	0.001 (0.130)	0.001* (0.051)	0.001 (0.125)
Sex (female – 1; male – 0)	0.612*** (0.000)	0.574*** (0.000)	0.613*** (0.000)	0.576*** (0.000)
Age (in 2015)	-0.007 (0.107)	-0.007 (0.120)	-0.007 (0.113)	-0.006 (0.132)
Education	-0.075 (0.165)	-0.068 (0.205)	-0.075 (0.166)	-0.069 (0.202)
Religion (1 – Shiite; 0 – otherwise)	-0.065 (0.636)	-0.073 (0.602)	-0.065 (0.632)	-0.072 (0.602)
MP is a farmer (1 – yes; 0 – no)	0.055 (0.369)	0.060 (0.327)	0.055 (0.371)	0.059 (0.334)
Political orientation dummy (1 – principalist, 0 – otherwise)	0.015 (0.817)	0.015 (0.807)	0.015 (0.808)	0.015 (0.817)
Member of the Agricultural Commission (1 – yes; 0 – no)	-0.123 (0.186)	-0.121 (0.177)	-0.124 (0.180)	-0.122 (0.176)
Affiliated with the IRGC (1 – yes; 0 – no)	-0.013 (0.824)	-0.013 (0.818)	-0.013 (0.823)	-0.014 (0.811)
Religious scholar (1 – yes; 0 – no)	-0.104 (0.168)	-0.107 (0.159)	-0.104 (0.167)	-0.106 (0.161)
Number of years as an MP	0.026 (0.406)	0.025 (0.406)	0.026 (0.406)	0.025 (0.410)
Dummy for districts with a city with >500 thousand population (1 – yes; 0 – no)	0.130 (0.165)	0.132 (0.160)	0.127 (0.174)	0.129 (0.170)
Share of ag producers living outside the production district * Share of obtained votes by MP		-0.146* (0.077)		
Share of non-household agricultural producers * Share of obtained votes by MP				-0.130* (0.096)
Province dummies	Yes	Yes	Yes	Yes
Observations	282	282	282	282
Pseudo R ²	0.180	0.188	0.180	0.187

We present average marginal effects instead of coefficients for a higher interpretability. Significance level: *10%, **5%, ***1%. p-values are reported in parentheses

irrespective of local elites' pressure. Accordingly, they adhere to the central government's agenda of subsidy retrenchment. In a situation of high political competition, MPs appear to react to the needs of local agricultural elites and are more likely to support the motion. The non-overlapping 95% confidence intervals for the effects



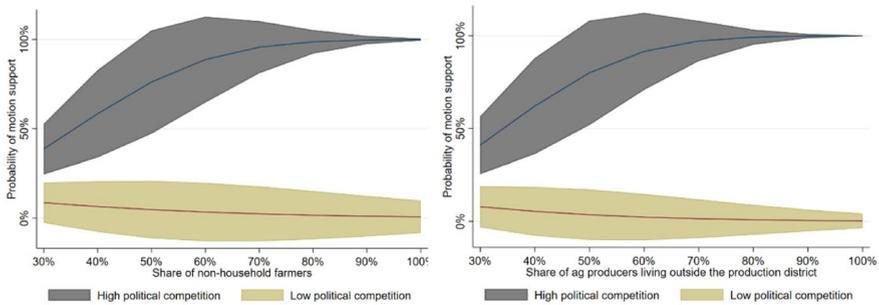


Fig. 6 Predicted probabilities of supporting the motion depending on local political competition

across both scenarios clearly illustrate the facilitating effect of political competition. These patterns are consistent with a subsidy coalition spearheaded by constituency-embedded rural elites: MPs are most likely to defend irrigation subsidies where rural elites are influential and electoral contests are close.

It is also informative to examine the control variables in our estimations. MPs tended to support the motion in the districts with more rural voters granting evidence to our “rural bias” hypothesis. Moreover, groundwater dependence proxied by wells per 1000 ha of agricultural land is positively associated with support. In particular, where reliance on pumped irrigation is greater, MPs are more likely to defend cheap irrigation inputs. This pattern aligns with our environmental-feedback mechanism, whereby deeper dependence heightens the local salience of subsidies and raises the political cost of retrenchment. Apart from that, we find that female MPs were significantly more likely to support free irrigation water as well as younger MPs.⁷

Interestingly, none of the variables related to ideology or religion (political orientation, IRGC affiliation, and religion) are significant, suggesting that, in the case of irrigation subsidies, Iranian MPs were more driven by political economy considerations and not regime ideology. We interpret this pattern as evidence that, on this high-salience distributive policy, constituency economics dominate organizational branding: regardless of faction or IRGC ties, MPs face similar electoral incentives to protect cheap irrigation inputs where organized rural producers can mobilize votes and sanctions. We also acknowledge a complementary valence logic: keeping irrigation affordable enjoys broad support across factions, which can mute ideological differentiation. An insignificant IRGC coefficient does not mean the IRGC is irrelevant. Rather, this is consistent with the Guards’ regime-stability mandate being pursued through diverse, sometimes cross-cutting strategies. Some IRGC-linked politicians stress fiscal restraint and national cohesion, while others accommodate distributive claims rooted in their districts or in IRGC-adjacent economic networks (Brumberg 2001; Takeyh 2009). Much IRGC influence also operates through national venues (budgeting, ministries, parastatals), which lie outside our district-level lens. Finally, our IRGC measure is a binary affiliation, which cannot capture intensity or heterogeneity of ties and likely attenuates any average legislative effect.

⁷ The effect is very close to the conventional 10% significance level.



Robustness

We first check the predictive power of our motion-support estimations using classification tables. For all the Probit models, we observe correct classification rates between 72 and 74% suggesting that our models predict motion-support behavior reasonably well. Second, we experiment with alternative proxies for local elites. In particular, we use the number of agricultural companies and the number of agricultural machinery units (harvesters, tractors, etc.). Both of the variables should reflect the power of local elites and their ability to exert power on local MPs. Running identical specifications, we find that the results do not change substantially. Furthermore, we construct alternative proxies on the province level: Gini coefficients and HHI indices of cultivated land as well shares of farms cultivating more than 200 ha out of total farms in a given province. Because these indicators entail an unavoidable scale mismatch (province-level proxies applied to district outcomes) and potential ecological bias, we interpret them cautiously. Even so, the estimates are consistent with those in Table 4 suggesting robustness of our main results. This supports that our main result does not hinge on a single elite proxy.

Then, we run a robustness check of our proxies of political competition. The concern is that the winner's vote share can conflate safe seats with popularity. To address this potential problem, we re-estimate our models using the Herfindahl–Hirschman Index (HHI) of candidate vote shares assuming equal distribution of the remaining shares between defeated candidates. Simple candidate counts track participation, not the effective contest or vote clustering—hence they overlook concentration. Estimation results mirror our baseline estimations.

Another concern is that electoral districts with large cities may represent a natural choice of residence for influential farmers. To rule out this possibility, we rerun our estimations of the motion-support behavior excluding the districts with cities with populations over 500 thousand persons. The results do not change substantially and the marginal effects are very close to the main estimations in Table 4, indicating the pattern is not driven by big-city constituencies and is consistent with a coalition where urban allies act mostly off-district. In addition, we repeat these procedures for the malapportionment estimations to ensure that urban districts do not drive the results. Re-estimated marginal effects are very similar to our main estimations in Table 3.

Moreover, we test whether subsidy rigidity might be linked to institutional representation (malapportionment) rather than local elite influence. In particular, we included the malapportionment index and the number of representatives within district in the Probit specification and interacted it with our elite proxies. The results show that institutional representation by itself does not significantly affect MPs' probability of supporting the 2015 motion on irrigation subsidies, and the interaction terms with elite variables are also statistically insignificant. In other words, MPs from overrepresented districts were not systematically more likely to promote irrigation subsidies, nor did overrepresentation amplify the effect of absentee or non-household producers. These findings suggest that institutional weighting of rural votes—while a central feature of Iranian electoral design—does not explain variation in MP behav-



ior. Instead, our results reinforce the interpretation that it is local elite capture, rather than structural malapportionment, that drives political resistance to subsidy reform.

Finally, we examine MPs' behavior with respect to an alternative motion: 2014 plan to subsidize importing drinking and irrigation water from neighbouring countries for Iran's most arid areas⁸. The idea was to import water via non-governmental channels from neighbouring water-rich countries to cover the needs of the southeastern provinces. We use identical specifications with the exception of the dependent variable and limit our sample to the following provinces: Kerman, Sistan and Baluchestan, Southern Khorasan, Northern Khorasan, Khorasan Rasavi, and Hormozgan. This resulted in a sample of 49 MPs. Table 5 presents the estimations. Despite the small sample, the results appear to be very similar to our main estimations. The coefficients of the interaction terms are insignificant but appear to be in the expected direction. As a result, local elites of the eastern and south-eastern electoral districts with particularly large water challenges appear to influence their respective MPs. The latter seem to respond to this influence more if they face higher political competition. It is however, important to note that because the 2014 initiative concerns a different policy instrument and covers fewer districts, we treat it as a scope-condition check, not a longitudinal test.

Conclusion

This study uses a critical case of the 2015 Majlis motion on irrigation water to probe why autocrats can struggle to retrench subsidies. Our central insight is that local elite capture, mediated by electoral competition, can trump both ideological alignments and the central government's reform agenda in a competitive autocracy. The episode shows how reliance on rural elites and constituency-level pressures can impede reform in agriculture. The 2010 Reforms implemented by the IRI regime were successful in phasing out electricity subsidies in most of the economic sectors except for agriculture which demonstrated an unexpected rigidity. We attempted to explain these challenges arguing that agricultural elites were able to promote their agenda because of strategic overrepresentation of rural issues in Iranian politics. In particular, the IRI regime may have the incentives to assign more MPs to the rural districts to minimize the political salience of the urban areas that may threaten the regime. This overrepresentation of rural grievances may amplify local elites' voices and increase their political weight. Thus, the IRI regime's strategy to stay in power may backfire in terms of rigidities of subsidy retrenchment. The incentives of the MPs to cater to the interests of local elites may depend on their incumbency confidence. Thus, they may cater to local elites facing high political competition and follow the central government's agenda of phasing out subsidies if no strong candidates compete for their posts. We test these hypotheses econometrically using a unique dataset constructed from Iran's official sources.

⁸ Source: Research Center of Islamic Consultative Assembly https://rc.majlis.ir/fa/legal_draft/show/891263.



Table 5 Estimation of MPs' support behavior with respect to an alternative motion. *Source:* Own estimation

	Probit (1)	Probit (2)	Probit (3)	Probit (4)
Share of ag producers living outside the production district	0.993** (0.039)	1.349** (0.028)		
Share of non-household agricultural producers			1.044** (0.035)	1.435** (0.029)
Share of obtained votes by MP	-0.016*** (0.002)	-0.021*** (0.001)	-0.017*** (0.001)	-0.022*** (0.001)
Share of rural voters out of total voters within district	1.022 (0.210)	1.201 (0.143)	1.048 (0.196)	1.257 (0.127)
Number of wells per 1000 ha of ag land	-0.012*** (0.000)	-0.012*** (0.000)	-0.011*** (0.000)	-0.012*** (0.000)
Sex (female - 1; male - 0)	-0.603** (0.019)	-0.675** (0.013)	-0.588** (0.023)	-0.673** (0.015)
Age (in 2015)	-0.035*** (0.000)	-0.036*** (0.000)	-0.035*** (0.000)	-0.036*** (0.000)
Education	-0.204 (0.166)	-0.268 (0.112)	-0.214 (0.137)	-0.281* (0.089)
Religion (1 - Shiite; 0 - otherwise)	1.570*** (0.000)	1.488*** (0.000)	1.559*** (0.000)	1.482*** (0.000)
MP is a farmer (1 - yes; 0 - no)	0.168 (0.203)	0.156 (0.259)	0.160 (0.220)	0.144 (0.303)
Political orientation dummy (1 - principalist, 0 - otherwise)	-0.050 (0.691)	-0.021 (0.868)	-0.047 (0.706)	-0.017 (0.890)
Member of the Agricultural Commission (1 - yes; 0 - no)	0.257 (0.208)	0.177 (0.396)	0.264 (0.186)	0.181 (0.376)
Affiliated with the IRGC (1 - yes; 0 - no)	0.034 (0.762)	0.024 (0.834)	0.030 (0.791)	0.022 (0.846)
Religious scholar (1 - yes; 0 - no)	0.375*** (0.001)	0.381*** (0.000)	0.382*** (0.000)	0.387*** (0.000)
Number of years as an MP	0.118** (0.026)	0.109** (0.042)	0.120** (0.023)	0.111** (0.037)
Dummy for districts with a city with > 500 thousand population (1 - yes; 0 - no)	0.427 (0.160)	0.505 (0.100)	0.428 (0.154)	0.509* (0.099)
Share of ag producers living outside the production district * Share of obtained votes by MP		-0.350 (0.253)		
Share of non-household agricultural producers * Share of obtained votes by MP				-0.365 (0.254)
Observations	49	49	49	49
Pseudo R2	0.506	0.517	0.509	0.521

We present average marginal effects instead of coefficients for better interpretability. Significance level: *10%, **5%, ***1%. p-values are reported in parentheses

The 2015 evidence suggests that regime-maintenance incentives can contribute to rigidity in phasing out irrigation water subsidies. First, our Tobit estimations indicate that electoral districts with predominantly rural voters enjoy higher representation in the Iranian parliament. Considering several failed attempts to re-district, it is evident that the central government resists balancing representation. Because the rural population tends to be more conservative and religious, it may be instrumental for



the central government to overrepresent their grievances generating a so-called “rural bias”. We showed that the opportunities to adjust the seats and electoral district borders were ignored despite the growing rural overrepresentation. Second, using Probit models of MPs’ motion-support behavior, we find that agricultural elites were able to exert pressure on respective MPs to retain irrigation water subsidies or even increase them. Thus, a 10%-increase in the share of non-household agricultural producers implies a 9%-increase in the support of the motion for free irrigation water. Our alternative proxy for local agricultural elites demonstrates similar results.

Importantly, we find that the effect of local elites depends on local political competition. Thus, whether MPs cater to local elites or follow the agenda of the central government depends on whether they are threatened by potential challengers. Econometric models reveal that the pressure from local elites is more effective if local political competition is high. On the other hand, if an MP’s power is undisputed (high share of votes), s/he may care less about obtaining more political support locally and may adhere to the central government’s plan to phase out subsidies.

Our analysis also underscores how the regime maintenance incentives of the IRI carry profound environmental costs. In Iran’s arid and drought-prone climate, continued subsidization of irrigation water and energy, which is used to secure rural political support, has depleted groundwater reserves, accelerated land subsidence, and strained surface water systems. The 2025 water and electricity crisis, when 19 major reservoirs dropped below 20% of capacity (TASNIM 2025) and nationwide blackouts disrupted daily life (Shokri 2025), illustrates this paradox: distributive policies that bolster regime stability in the short run simultaneously deepen long-term risks to water security, environmental sustainability, and ultimately the regime’s own durability. Situated at the intersection of comparative autocracy, distributive politics, and environmental political economy, this paper makes a threefold contribution. First, we address the debates on how autocrats mobilize political support through local structures. We show that constituency-level incentives (rural overrepresentation, organized agricultural interests, and electoral contestation) can harden the status quo and override central reform, which clarifies when capacity at the center does not deliver retrenchment (Kvartiuk and Herzfeld 2020; Lust-Okar 2006; Reuter et al. 2016; Svolik 2012). In line with this literature, authoritarian regimes can grant meaningful autonomy to local governments to manage elites and maximize regime support, and Iran’s experience parallels strategies observed in other competitive autocracies. Second, we contribute to the literature on the micro-dynamics of elite capture by showing that constituency-embedded agricultural elites shape MPs’ revealed preferences and that this influence is strongest when races are tight, which aligns with evidence on competition and business influence in local politics and on targeted redistribution under competition (Frye et al. 2018; Golden and Min 2013; Grossman and Helpman 2001; Lévêque 2020). Third, we connect these distributive dynamics to the environmental political economy of water. By tying subsidy defense to water dependence, we recast “rural bias” in apportionment not only as a representational strategy but also as a mechanism that stabilizes support while entrenching environmental degradation and policy lock-in in overrepresented agricultural districts (Boone and Wahman 2015; Pierson 2000; Snyder and Samuels 2004; Weingast 2009).



Results of this study can motivate a number of future promising research directions. First, our analysis primarily captures rural elite influence, while irrigation subsidies may also serve urban interests such as processors and exporters. Future research should explore these coalitions more directly, linking firm-level data with parliamentary and ministerial decisions. Second, our analysis is limited to the 2015 motion, which provides the only systematic evidence of MPs' revealed preferences on irrigation subsidies. While this scope constrains generalizability, the continued salience of irrigation pricing in later years underscores the need for longitudinal evidence. Future research should assess durability through multi-episode legislative or budgetary data as they become available. Third, while we analyze parliamentary behavior, we cannot directly link MPs' revealed preferences to district-level subsidy outcomes, as such data are not publicly available in Iran. Future research could combine parliamentary records with administrative or budgetary data, once accessible, to trace how political resistance translates into actual subsidy allocation patterns. Finally, while province fixed effects and rich controls mitigate observed confounding, reverse causality and omitted variables remain a concern forcing us to interpret our estimates as associational. Future work could instrument district-level elite presence with pre-determined factors for large-scale irrigated agriculture (e.g., terrain slope, agro-ecological suitability, exposure to legacy irrigation infrastructure, and groundwater depth) and, where feasible, exploit border-discontinuity or panel designs as additional identification strategies.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1057/s41294-026-00277-5>.

Funding Open Access funding enabled and organized by Projekt DEAL.

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